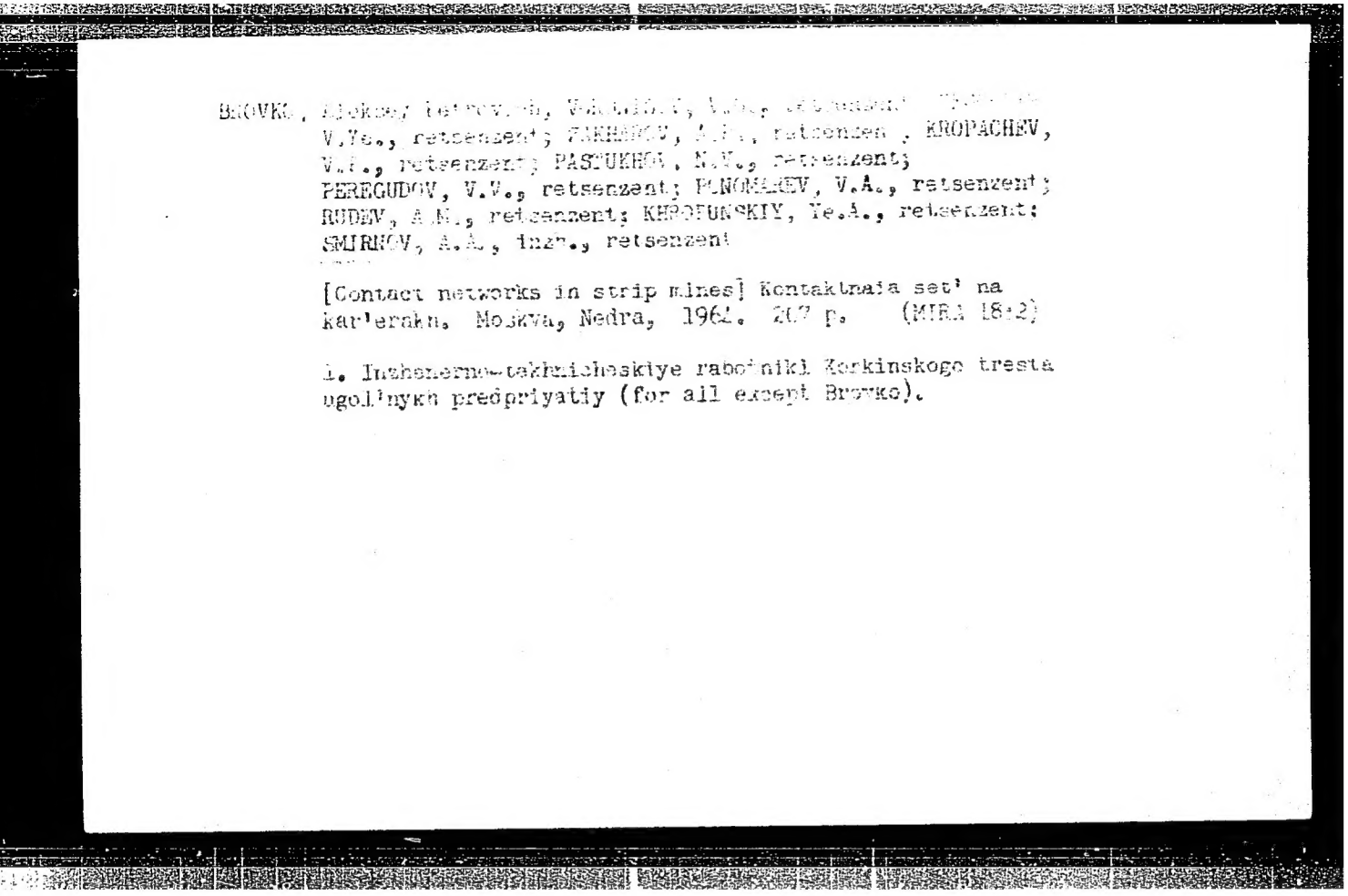
STASYUK, Valentin Nikolayevich, kand. tekhn. nauk; SMIRNOV, A.A., otv. red.; LYUBIMOV, N.G., red.izd-va; PROZOROVSKAYA, V.L., tekhn. red.; MAKSIMOVA, V.V., tekhn. red.

[Electric locomotive transportation in open-pit mines] Elektrovoznyi transport na kar'erakh. Moskva, Gosgortekhizdat, 1963. 287 p. (MIRA 16:7)

(Mine railroads)

ANDREYEV, Aleksey Vladimirovich, doktor tekhn. nauk; ANCHAROV, Il'ya Leonidovich, inzh.; KUDINOV, Georgiy Pavlovich; SMIRNOV, A.A., retsenzent; LYUBIMOV, N.G., red. izd-va; MINSKER, L.I., tekhn. red.; IL'INSKAYA, G.M., tekhn. red.

[Automatic control of open-pit mine transportation] Avtomatizatsiia kar'ernogo transporta. Moskva, Gosgortekhizdat, 1963. 253 p. (MIRA 16:10)
(Strip mining--Equipment and supplies)
(Mine haulage) (Automatic control)



BROVKO, Aleksey Petrovich, V.A. [illegible], V.Ye., retsenzent; ZAKHAROV, A.P., retsenzent; KROPACHEV, V.I., retsenzent; PASUKHOV, N.V., retsenzent; PEREGUDOV, V.V., retsenzent; PLNOMAZEV, V.A., retsenzent; RUDEV, A.N., retsenzent; KHROPUNSKIY, Ye.A., retsenzent; SMIRNOV, A.A., inzh., retsenzent

[Contact networks in strip mines] Kontaktnaia set' na karerakh. Moskva, Nedra, 1964. 207 p. (MIRA 18:2)

1. Inzhenerno-tekhnicheskiye rabotniki Korkinskogo tresta ugol'nykh predpriyatiy (for all except Brovko).

SMIRNOV, A. A., zasluzhennyy vrach RSFSR.

"Sulfanilamides and antibiotics in eye diseases." T.N. Gerasimenko. Reviewed by A. A. Smirnov. Sov. med. 19 no.11:90-91 N '55.(MLRA 9:1)
(EYE-DISEASES AND DEFECTS)
(ANTIBIOTICS)
(SULFANILAMIDES)
(GERASIMENKO, T. N.)

SMIRNOV, A.A., zasluzhennyy vrach (Ul'yanovsk)

E.V.Adamiuk and his merits in the field of ophthalmology in Russia. (MLRA 10:7)
Sov.med. 21 no.5:143-147 My '57.
(ADAMIUK, EMELIAN VALENTINOVICH, 1839-1906)

SMIRNOV, A.A., zasluzhennyy vrach RSFSR (Ul'yanovsk)

Cupping of incipient stys. Sov.med. 26 no.6:134 '62.
(MIRA 15:11)

(EYELIDS--DISEASES)

SMIRNOV, A.A.

Automatic regulator of the density of the impregnation solution for match sticks. Der.prom. 11 no.2:13-14 F '62. (MIRA 15:1)

1. Leningradskaya lesotekhnicheskaya akademiya im. S.M.Kirova.
(Match industry--Equipment and supplies)

SMIRNOV, A.A., inzhener; YUKALOV, I.N., inzhener; FANBULOV, A.K., kandidat tekhnicheskikh nauk.

Compressor and instrument parts casting in shell molds. Lit.proizv. no.7:8-10 Jl '56. (MLRA 9:9)
(Shell molding (Founding))

SMIRNOV, A.A., inzh.; YUKALOV, I.N., inzh.; FANBULOV, A.K., kand. tekhn.nauk

Shell molding of compressor and apparatus parts. Sbor.st. NIIKHIMMASH no.23:38-46 '57. (MIRA 12:5)
(Shell molding (Founding))

New Trends in Machinery Manufacture SOV/3109

COVERAGE: This is the first number of the Transactions of VNIITMASH (formerly VNIITMASH) on the theoretical and experimental work carried out by the All-Union Scientific Research Institute for Standardization of Machine Building in 1956-57. Subjects covered include investigations of new constructions and advanced methods in manufacturing machine parts for general machine building, hydraulic machinery, textile, sewing and other machines. The ten papers in this issue describe improvements in preparatory technique for making steel and iron castings, the progressive technique of making blanks for spinning rings by the closed die forging method, improvements in making parts for textile machines, sand and mud pumps and other machinery. Problems of automation in mass production of needles for sewing machines are discussed and the theory of deformation of rings with large curvature is presented. No personalities are mentioned. References accompany each article.

TABLE OF CONTENTS:

Card 2/4

New Trends in Machinery Manufacture SOV/3109

AVAILABLE: Library of Congress

Card 4/4

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18(5) SOV/128-59-9-4/25

AUTHOR: Smirnov A.A. and Bobysheva I.V., Engineers

TITLE: Two-layer Shell Moulds for Iron Castings

PERIODICAL: Liteynoye proizvodstvo, 1959, Nr 9, pp 14-15 (USSR)

ABSTRACT: Application of processes which enable manufacturing of castings with highly precise and clean surface, by using shell moulds made of thermo-reactive rosins, is limited owing to the high cost of materials involved (rosins, bakelite). To meet the problem of cost reduction, the Institute VNIINMASh (VNIITMASh) worked out, in 1957-1959, a technological process of preparing two-layer moulds, where thermo-reactive rosins are combined with liquid glass and other chemically hardening materials. According to this method, the moulds are prepared of two layers - a thin one consisting of a mixture of sand and rosin (facing layer), and a thicker one made on the basis of liquid glass (consolidating layer). The requirements presented to two-layer shell moulds imply a number of physico-mechanical properties of layers entering as components in the moulds construction, such as their strength, heat-stability, gas-permeabi-

Card 1/3

lity, etc. The strength values of the layers containing 2 to 8% of powdered bakelite or liquid glass are given in Figure 1. A number of researchers (A.M. Lyass, L.Petrzhela and others) have determined that the strength of mixtures with different contents of liquid glass increases with the temperature rise, attaining its climax at 500° - 600°C, while the strength of thermo-reactive rosins falls, as their temperature is increased (research of O.V. Kolacheva, B. Vaters and others). The property of gas-permeability of double-layer shell moulds secures obtaining of high-quality castings. It has been experimentally established that the thickness of sand-rosin layers should vary from 1.5 to 6 mm, while that of the mixture with liquid glass should amount to 20-50 mm, both depending on the weight of the casting to be moulded. Pertinent figures are given on Page 15. The following is the mixture composition used for the preparation of double-layer shell moulds: 1) sand-rosin layer - 94 to 95% fine quartz sand, 5-6% powdered bakelite, and 0.20 - 0.35% paraffin-oil; 2) liquid glass layer - 100% of

coarse quartz sand and 6-7% (over 100%) of liquid glass. The manufacturing cost of castings had been, with the application of two-layer shell moulds, reduced by 8-9%, as compared with their cost when common methods of production were used; the labor applied was also nearly 2 times reduced. As a result, the total cost of castings was decreased by not less than 12% of its original value. There are 1 graph, 2 tables and 3 photographs.

SMIRNOV, A. A.

Technology

Repair of thermotechnical control and measuring instruments.
Moskva-Leningrad, Gostoptekhizdat, 1950.

9. Monthly List of Russian Accessions, Library of Congress, October 1952 ~~1953~~, Uncl.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 599 - I

BOOK Call No.: AF645853

Author: SMIRNOV, A. A.
Full Title: MAINTENANCE AND REPAIR OF HEAT CONTROL AND MEASURING INSTRUMENTS. Manual. 2nd ed., rev. and supp.
Transliterated Title: Remont teplotekhnicheskikh kontrol'no-izmeritel'nykh priborov. Prakticheskoye rukovodstvo. Vtor. perer. i dopol. izd.

PUBLISHING DATA
Originating Agency: None
Publishing House: State Scientific and Technical Publishing House of Petroleum and Mineral Fuel Literature (GOSTOPTEKHIZDAT)
Date: 1952 No. pp.: 478 No. of copies: 16,500
Editorial Staff
Editor: Gordov, A. N. Tech. Editor: Sokolova, E. V.

PURPOSE: A manual for maintenance and repair crews at power places and industrial establishments, a handbook for engineering and technical personnel in all industries and a textbook in tekhnikums and industrial training schools.

TEXT DATA
Coverage: This is the second edition of what the author calls the first attempt to write a practical manual for maintenance and repair

SMIRNOV, Aleksey Aleksandrovich; TROSHCHENKOV, I.I., redaktor; DOLMATOV, P.S., vedushchiy redaktor; GENNAD'YEVA, I.M., tekhn. redaktor.

[Repair of heat regulators; a practical reference manual] Remont reguliatorov teplovykh protsessov; spravochnoe prakticheskoe rukovodstvo. Leningrad, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1957. 654 p. (MIRA 10:12)
(Thermostat--Maintenance and repair) (Automatic control) (Heat)

KUBRYASHEV, L. I.; SMIRNOV, A. A.

"Estimation of influence of thermal unsteady state on convective heat-transfer coefficient for spherical bodies in flow at small Reynolds numbers."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Kubybyshev Aviation Inst.

GAVRILOV, Mikhail Konstantinovich; SMIRNOV, Aleksey Andreyevich; STEPICHEV, Ivan Stepanovich; FRIDMAN, V.G., red.; SOROKINA, T.I., tekhn.red.

[Agriculture in Irkutsk Province during the past 40 years] Sel'skoe khoziaistvo Irkutskoi oblasti za 40 let. [Irkutsk] Irkutskoe knizhnoe izd-vo, 1957. 120 p. (MIRA 11:4)
(Irkutsk Province--Agriculture)

SMIRNOV, Aleksey Andreyevich

[Agriculture in Irkutsk Province during the seven-year plan] Sel'skoe khoziaistvo Irkutskoi oblasti v semiletke. Irkutsk, Irkutskoe knizhnoe izd-vo, 1960. 86 p. (MIRA 14:10)
(Irkutsk Province—Agriculture)

SMIRNOV, A.A.; VISHNYAKOVA, Ye.A., red.; MATVEYEV, A.P., tekhn.red.

[Siberian virgin land] Sibirskaia tselina. Moskva, Izd-vo "Sovetskaia Rossiia," 1959. 186 p. (MIRA 13:6)
(Siberia)

SMIRNOV, A.A., ispolnyayushchiy obyazannosti dotsenta

Some problems of the hydrodynamics of a suspended layer. Sbor. nauch. trud. Kuib. indus. inst. no.8:111-121 '59. (MIRA 14:7)
(Hydrodynamics)

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10.3100
16.2181

S/612/59/000/008/010/016
D218/D304

AUTHOR: Smirnov, A. A., Acting Docent

TITLE: On applying the gas-dynamic theory of heat transfer to flow past bodies with separation

SOURCE: Kuybyshev. Industrial'nyy institut. Sbornik nauchnykh trudov, no. 8, 1959. Teplotekhnika; voprosy teorii rascheta i proyektirovaniya, 123-130

TEXT: The author is concerned with the high speed flow of a liquid past a symmetric body, with heat transfer occurring between the body and the liquid. The analysis is confined to the two-dimensional case. It is pointed out that the effect of separation is accompanied by an irreversible transformation of mechanical energy, giving rise to the appearance of the total hydrodynamic resistance. The latter can be divided into two terms, namely, frictional resistance and pressure resistance. The hydrodynamic theory of heat transfer is then inapplicable to the pressure resistance. However, if the pressure in the wake is taken into account, then the theory

Card 1/2

32270
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On applying the gas-dynamic ...

can be generalized to the case of flow with separation by introducing a certain correction into the appropriate formula which takes into account the contribution due to pressure resistance in the total resistance of the body. The author derives a generalized formula of gas-dynamic heat transfer and a transcendental equation for the correction coefficient K_{∞}^{**}, occurring there in terms of the dynamic and thermal characteristics of the wake at points distant from the body. The equation can be used for experimentally determining the coefficient. There are 5 Soviet-bloc references.

Card 2/2

27550
S/170/61/004/010/004/019
B109/B125

24.5200

AUTHORS: Kudryashev, L. I., Smirnov, A. A.

TITLE: The effect of unsteady heat transfer on the coefficient of heat transfer between a streamed-at solid and the flow

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 10, 1961, 21 - 29

TEXT: An infinitely long cylinder standing in the z direction is assumed to be subjected to an external cooling flow in the x direction. At the instant T = 0 the cylinder is supposed to be immersed infinitely fast into the flow. An unsteady heat transfer between cylinder and liquid begins at this moment. The authors base their theoretical investigations on the general flow equations and on the law of the increase of the turbulence $L = \sqrt{2\pi\nu t}$ which was established by Academician L. I. Sedov (Metody podobiya razmernosti v mekhanike, 1954). The heat transfer coefficient is found to be

$$\alpha = \frac{2\sqrt{\pi c}}{\pi} \frac{t_{1max}}{\vartheta_w} c_{po} \rho_o W_o \sqrt{\nu\tau + \frac{x}{W_o} y} \qquad (23),$$

where t_{1max} denotes the maximum temperature in the middle of the wake

Card 1/5

The effect of unsteady...

($y = 0$), c_{po} and γ_o are the values of c_p and γ in the undisturbed flow, W_o is the undisturbed flow rate, $c = W_{x1max}x/bW_o$, W_{x1max} indicates the maximum velocity in the middle of the wake, and b is the breadth of the wake. For Pr = 1, Eq. (23) goes over into

$$Nu^2 = \frac{4c}{\pi}\left(\frac{t_{1max}}{\vartheta_w}\right)^2 FoRe^2 + \frac{4c}{\pi}\left(\frac{t_{1max}}{\vartheta_w}\right)^2 \frac{x}{d} Re \qquad (24).$$

Since $(t_{1max}/\vartheta_w)^2 x/d = \varphi_1(Re)$ and $(t_{1max}/\vartheta_w)^2 = \varphi_2(Fo,Re)$, one obtains from Eq. (24) $Nu^2/Nu_{st}^2 = 1 + c/Fo^n Re^m$ (27), which is particularly convenient for experimental investigations. These investigations were carried out as follows: A 36 mm thick and 192 mm long duraluminium cylinder was heated to 180°C, and was then placed into an air stream. Temperature was measured by means of thermocouples. Fig. 1 shows the change of the cooling rate (1/sec) as a function of time (sec). Nu^2/Nu_{st}^2 versus $FoRe^{0.7}$ is rendered in Fig. 3. $Nu^2/Nu_{st}^2 = 1 + 3.6/(FoRe^{0.7})^{0.55}$ is obtained for $0 < FoRe^{0.7} < 23$ and $Nu^2/Nu_{st}^2 = 1 + 282(FoRe^{0.7})^2$ for $23 < FoRe^{0.7} < 70$.

Card 2/5

The effect of unsteady...

These results are in good agreement with the calculated values. Mention is made of B. D. Katsnel'son and F. A. Timofeyeva ("Teploperedacha i aerogidrodinamika", kniga 12, vyp. 3, Mashtiz, 1949; "Kotloturbostroyeniye" no. 5, 1948), and of Ye. M. Minskiy ("Izv. AN SSSR", 28, no. 8, 1940). There are 4 figures and 10 references: 9 Soviet and 1 non-Soviet.

ASSOCIATION: Aviatsionnyy institut, g. Kuybyshev (Aviation Institute, Kuybyshev)

SUBMITTED: April 28, 1961

Card 3/5

1. SMIRNOV, A.A.

2. USSR (600)

4. Water, Undeground

7. Establishment of actual processes of the formation of carbonic acids of subterranean waters and the significance of the established phenomena in perceiving of source of ore formations. Biul.MOIP. Otd.geol. 27, no.4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

Smirnov, A. A.

Formation of underground carbonic acid waters. A. A. Smirnov (All-Union Sci. Research Inst. Hydrogeol. and Eng. Geol., Moscow). *Gidrokhim. Materialy* 24, 101–7 (1955).—Facts which seem to contradict the existing theory that underground carbonic acid waters are of juvenile origin are reviewed, and a new interpretation of the problem is discussed. It is concluded that the CO_2 of underground carbonic acid waters originates in the atm.

N. Charmendarian

SMIRNOV, A.A.

Nature of CO_2 in underground carbonate waters. Sov.geol. no.44:87-99 '55. (MLRA 8:11)

(Water, Underground) (Carbon dioxide)

SMIRNOV, A.A.; SHCHERBAKOV, A.V.; SKVORTSOV, V.P., red.; BORISOV, A.S., tekhn.red.

[Practical instructions for the interpretation and verification of radiohydrogeological anomalies in prospecting for uranium deposits] Metodicheskie ukazaniia po interpretatsii i proverke radiogidrogeologicheskikh anomalii s tsel'iu poiskov uranovykh mestorozhdenii. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1957. 33 p. (MIRA 11:6)
(Uranium) (Prospecting--Geophysical methods)

SMIRNOV, A.A.

Genesis of CO_2 in modern carbonate underground waters. Sov. geol. 1 no.1:150-155 Ja '58. (MIRA 11:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut-gidrogeologii i inzhenernoy geologii.
(Water, Underground) (Carbon dioxide)

SMIRNOV, A.A.

Investigating channel infiltration capacity in solving hydrogeological problems [with summary in English]. Sov. geol. 1 no.3:95-105 Mr '58. (MIRA 11:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Water, Underground)

SMIRNOV, A.A.

Using the natural electric field method in the region of the Kungur ice cave. Vest. Mosk. un. Ser. biol., pochv., geol., geog. 13 no.2:195-200 '58. (MIRA 11:9)

1. Moskovskiy gos. universitet, Kafedra geofiziki.
(Kungur region--Karst) (Geophysical research)

SMIRNOV, A. A.: Master Geolog-Mineralog Sci (diss) -- "A study of filtration potentials in order to solve some hydrogeological problems". Moscow, 1959. 12 pp (Min Higher Educ USSR, Moscow Order of Lenin and Order of Labor Red Banner State U im M. V. Lomonosov, Geol Faculty), 110 copies (KL, No 18, 1959, 122)

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24,1800

AUTHORS: Frolov, A. D. and Smirnov, A. A.

TITLE: Some results of studying ultrasound propagation in rock specimens

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 6, 1962, 7, abstract 6A33 (V sb. Merzlotn. issled., no. 1, M., MGU, 1961, 236-254)

TEXT: The measurements were made by means of the ultrasonic device УП-4 (UP-4), designed on the basis of the ИКЛ-5 (IKL-5) apparatus. The UP-4 device is an electron-acoustic appliance, allowing the passage of an elastic impulse through a rock specimen to be measured in a wide time range. The time is determined by means of reading marks on the cathode-ray tube's scale. There are three time-measurement bands, covering an interval from 0 to 16,000 μsec. The circuit provides for a certain main-pulsing time lag in relation to the moment when scanning is started. An additional lag which can be smoothly controlled within the single interval between the main

Card 1/3

time marks on each band, is created by means of a special potentiometer. A time interpolation accuracy of 0.05-the value of the interval on each band is achieved as a result. The specimens were prepared from the core of holes, drilled near the Yakovlev KMA deposit; the specimens were paraffinized in order to preserve their natural moisture. After preparation, the specimens were subjected to freezing in a special refrigerating plant at a temperature of -50°C for 6 - 7 hours. The values of the propagational speeds of ultrasound and of the elasticity modulus for clays, sands, their interstratification, and sandstone were determined as a result of the executed tests. It is established how these magnitudes change in relation to the temperature in the range from -20 to +20°C, the freezing conditions, and the moisture. In the temperature range from -2 to +2°C there is an extremely sharp change in the acoustic characteristics of argillo-arenaceous rocks. The values of the propagational speeds of ultrasound in the studied rocks vary from 1500 to 3100 m/sec. The jump in the change of the propagation velocity of ultrasound reaches 300 - 500% for sands and 20 - 30% for clays. Subsequently it will be expedient to continue the re-

search with the aim of ascertaining the absorption factor on different frequencies and in different lithologic rock types. It will be necessary, too, to study the conditions of the propagation and the possible recording of not only longitudinal but also transverse and other waves. [Abstracter's note: Complete translation.]

ZAYTSEV, G.N.; POGOREL'SKIY, N.S.; SMIRNOV, A.A.; FOMIN, V.M.; SHAGOYANTS, S.A.

New data on carbonated underground waters in the region of Caucasian Mineral Waters. Sov. geol. 4 no.1:89-97 Ja '61. (MIRA 14:1)

1. Ministerstvo geologii i okhrany nedr SSSR, Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii, Glavgeologiya RSFSR i Severo-Kavkazskoye geologicheskoye upravleniye. (Caucasus--Mineral waters)

SMIRNOV, A.A., red.; MUKHINA, T.N., tekhn. red.

[Summaries of papers to a conference on phychology] Soveshchanie po psikhologii. Tezisy dokladov. Moskva, Izd-vo Akad. pedagog. nauk RSFSR, 1953. 67 p. (MIRA 14:8)
(EDUCATIONAL PSYCHOLOGY) (PERCEPTION) (NERVOUS SYSTEM)

ANAN'YEV, B.G., red.; KOSTYUK, G.S., red.; LEONT'YEV, A.N., red.; LURIYA, A.R., red.; MENCHINSKAYA, N.A., red.; RUBINSHTEYN, S.L., red.; SMIRNOV, A.A., red.; TEPLOV, B.M., red.; SHEMYAKIN, F.N., red.; ZHUKOV, I.V., red.; PONOMAREV, Ya.A., red.; MATYUSHKIN, A.M., red.; LAUT, V.G., tekhn.red.

[Psychology in the U.S.S.R.] Psikhologicheskaia nauka v SSSR. Moskva. Vol.1. 1959. 597 p. (MIRA 12:8)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut psikhologii.

(Psychology)

SMIRNOV, A.A.

Tasks of psychology in the light of the decisions of the Twenty-first Congress of th CPSU. Vop.psikhol. 5 no.5:7-28 S-O '59. (MIRA 13:3)
(Psychology)

ANAN'YEV, B.G., red.; KOSTYUK, G.S., red.; LEONT'YEV, A.N., red.; LURIYA, A.R., red.; MENCHINSKAYA, N.A., red.; RUBINSHTEYN, S.L., red. [deceased]; SMIRNOV, A.A., red.; TEPLOV, B.M., red.; SHEMYAKIN, F.N., red.; PONOMAREV, Ya.A., red.; LAUT, V.G., tekhn.red.

[Psychology in the U.S.S.R.] Psikhologicheskaia nauka v SSSR. Moskva. Vol.2. 1960. 653 p. (MIRA 14:1)

1. Akademiya pedagogicheskikh nauk RSFSR. Institut psikhologii. (Psychology)

SMIRNOV, A.A.

Leninist theory of reflection and psychology. Vop.psikhol. 6 no.2:10-34 Mr-Ap '60. (MIRA 13:7)

1. Institut psikhologii APN RSFSR, Moskva.
(Lenin, Vladimir Il'ich, 1870-1924)
(Thought and thinking)

SZMIRNOV, A.A. [Smirnov, A.A.]

Psychological tasks as reflected in the decisions made at the 21st Congress of the Communist Party of the Soviet Union. Magy pszichol szemle 17 no.2:129-151 '60.

1. Szovjet Pszichologiai Tarsasag elnoke.

SMIRNOV, A.A.

Psychological preparation for work. Vop. psikhol. 7 no.1:3-12 Ja-F '61. (MIRA 14:3)

1. Institut psikhologii Akademii pedgagogicheskikh nauk RSFSR, Moskva. (Work--Psychological aspects)

RUBINSHTEYN, S.L.; SOKOLOV, A.N.; LURIYA, A.R.; LEONT'YEV, A.N.; SMIRNOV, A.A.; GONOBOLIN, F.N.; MENCHINSKAYA N.A.; ZHINKIN, N.I.; IGNAT'YEV, Ye.N.; EL'KONIN, D.B.; GUREVICH, K.M.; GUR'YANOV, Ye.V.; LEYTES, N.S.; KRUTETSKIY, V.A. Prinimali uchastiye: POLYAKOV,G.I.; SHEMYAKIN, F.N.; TEPLOV, B.M., red.; VVEDENSKAYA, L.A., red.; DRANNIKOVA, M.S., tekhn. red.

[Psychology]Psikhologiia; uchebnik dlia pedagogicheskikh institutov. Pod red. A.A.Smirnova i dr. Izd.2. Moskva, Uchpedgiz, 1962. 558 p. (MIRA 15:11)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut psikhologii.

(PSYCHOLOGY)

KOSTYUK, G.S.; MENCHINSKAYA, N.A.; SMIRNOV, A.A.

Urgent tasks of schools and the problems of educational psychology. Vop. psikhol. 9 no.5:48-60 S-O'63. (MIRA 17:2)

1. Institut psikhologii, Kiyev (for Kostyuk).
2. Institut psikhologii Akademii pedagogicheskikh nauk RSFSR, Moskva (for Menchinskaya, Smirnov).

KOSZTYUK, G.Sz. [Kostyuk, G.S.]; MENCSINSZKAJA, N.A. [Menchinskaya, N.A.]; SZMIRNOV, A.A. [Smirnov, A.A.]

Current tasks of the school and psychological problems of teaching. Magy pszichol szemle 21 no.3:359-371 '64.

1. Institute of Psychology, Kiev (for Kosztyuk).
2. Institute of Psychology of the Academy of Educational Sciences of the R.S.F.S.R., Moscow (for Mencinszkaja and Szmirnov).

KREPS, Ye.M.; MENUKYAN, L.G.; PATRIKEYEVA, M.V.; SMIRNOV, A.A.; CHERNYAYEVA, Ye.Yu.; SHIRKOVSKAYA, Ye.V.

Phospholipids of subcellular brain particles in chick embryogeny. Zhur. evol. biokhim. i fiziol. 1 no.1:16-25 Ja-F '65. (MIRA 18:6)

1. Institut evolyutsionnoy fiziologii i biokhimii im. I.M. Sechenova AN SSSR, Leningrad. 2. Glavnyy redaktor "Zhurnala evolyutsionnoy biokhimii i fiziologii" (for Kreps).

[redacted], K.I.; VOLKOV, B.A.; MATVEYEV, V.V.; [redacted], A.A.

Effect of an electric field on the position of the optical absorption "edge" in polycrystalline CdS films. Fiz. tver. tela 7 no.8:2536-2538 Ag '65. (MIRA 18:9)

SMIRNOV, A.A., inzh.

Distribution trucks for concrete. Stroi. i dor. mash. 10 no.7:24-26 Jl '65. (MIRA 18:8)

SMIRNOV, A. A.

Smirnov, A. A. "The Aygurskiy merino sheep sovkhoz, Stavropol'kray," Trudy Stavrop. s.-kh. in-ta, Issue 3, 1948, p. 109-28

So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

SMIRNOV, Aleksandr Arsen'yevich

SMIRNOV, Aleksandr Arsen'yevich (Stavropol' Agricultural Inst), Academic degree of Doctor of Agricultural Sciences, based on his defense, 16 December 1955, in the Council of the Moscow Veterinary Acad, of his dissertation entitled: "Alternate inter-breeding of fine-fleeced sheep."

For the Academic Degree of Doctor of Sciences

Byulleten' Ministerstva Vysshego Obrazovaniya SSSR, List No. 7, 31 March 1956
Decision of Higher Certification Commission Concerning Academic Degrees and Titles.

JPRS 512

L 62782-65
ACCESSION NR: AP5020628 UR/0218/64/029/006/1111/1118

14
B

AUTHOR: Kreps, Ye. M.; Manukyan, K. G.; Patrikeyeva, M. V.; Smirnov, A. A.; Chenykayeva, Ye. Yu.; Chirkovskaya, Ye. V.

TITLE: Phospholipids of the subcellular particles of hen's brain

SOURCE: Biokhimiya, v. 29, no. 6, 1964, 1111-1118

TOPIC TAGS: cell physiology, brain, cytology, experiment animal

Abstract: Investigations were conducted to determine the content of phospholipids in the subcellular particles (mitochondria, microsomes, and nuclei) of a hen's brain. Grown hens of the White Leghorn variety were used in the investigations. A hen's brain separated from the membrane and the blood vessels was reduced to fine particles and homogenized with a solution of saccharose and ethylenediamine tetraacetate for two minutes. The subcellular particles were isolated by differential centrifuging at temperatures of + 2 to four degrees. The phospholipid content in the subcellular particles was determined by paper chromotography. The investigations established that the phospholipid content was largest in the microsomes, and somewhat lower in the mitochondria and nuclei -- by 10-15 percent. Some differences characterized the fractions: lecithin was

Card 1/2

L 62782-65

ACCESSION NR: AP5020628

found to be the largest component in all of the fractions; the fraction content of phosphatidilethanol and phosphatidilserine was somewhat smaller; small concentrations of sphingomyelin, phosphatidilinositol, and phosphatidilglycerol were found. An absence of phosphatidilglycerol is characteristic of the microsomes, although it is always present in the mitochondria and nuclei. It was established also that the microsomes contain larger quantities of shingomyelin and lecithin than the other fractions, while the mitochondria contain larger quantities of ethanoaminophosphatide and serinophosphatide. Orig. art. has 1 figure and 2 tables.

ASSOCIATION: Institut evolyutsionnoy fiziologii i biokhimii im. I. M. Sechenova Akademii nauk SSSR, Leningrad (Institute of Evolutionary Physiology and Biochemistry, Academy of Sciences SSSR)

SUBMITTED: 23Apr64 ENCL: 00 SUB CODE: LS

NO REF SOV: 005 OTHER: 020 JPRS

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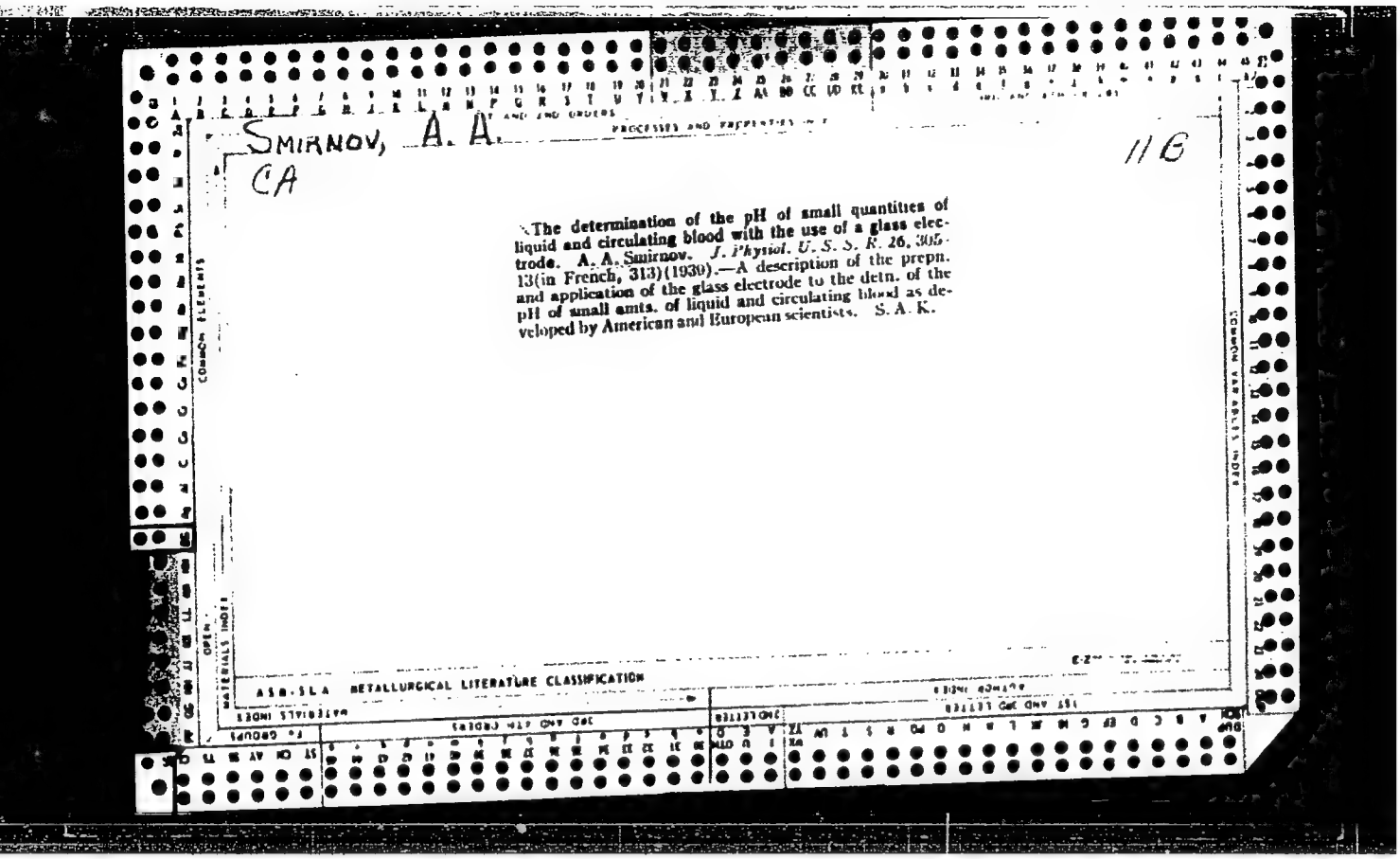
Card 2/2



SMIRNOV, A. A.

CA

11 G

The determination of the pH of small quantities of liquid and circulating blood with the use of a glass electrode. A. A. Smirnov. *J. Physiol. U. S. S. R.* 26, 305-13(in French, 313)(1939).—A description of the prepn. and application of the glass electrode to the detn. of the pH of small amts. of liquid and circulating blood as developed by American and European scientists. S. A. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

USSR/Medicine - Erythrocytes Jan/Feb 1948
Chemistry - Zinc, Determination of

"Polarographic Method of Quantitative Determination of Zinc in the Erythrocytes of the Blood," A. A. Smirnov, Physiol Inst imeni I. P. Pavlov, Acad Sci USSR, 9 pp

"Biokhim" Vol XIII, No 1

Measurements of zinc content of erythrocytes permit estimation of amount of carbon anhydrase in animal blood. Margin of error in subject method for measurement was ± 2 - 3%. When two or three measurements are made this margin of error can be cut to ± 1 - 1.5%. From 0.5 to 1 g of erythrocytes is necessary for the measurements. Submitted 21 Jul 1947.

64T58

SMIRNOV, A.A.

Characteristics of carbonic anhydrase in the blood of various classes of vertebrates. Biokhimiya 18,1-6 '53. (MLRA 6:1)
(CA 47 no.16:8211 '53)

1. I.P.Pavlov Inst. Physiol., Acad. Sci. U.S.S.R., Leningrad.

1. SMIRNOV, A. A.

2. USSR (600)

4. Phosphorus

7. Method for measuring the activity of phosphorus isotope P^{32}. Biokhimiia 18 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

SMIRNOV A. A.

USSR

Study of the rate of exchange of phosphorus in the brain of rabbit in various stages of ontogenesis with the aid of radioactive phosphorus. A. A. Smirnov and D. A. Chetverikov (I. P. Pavlov Inst. Physiol., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 90, 631-3(1953).—*P* exchange was studied by intraperitoneal introduction of P^{32} after which in 1½ hrs. the brain was examd. after trepaning and freezing the specimens in Dry Ice. It was shown that P^{32} enters most rapidly the less complex acid-sol. org. compds. of brain tissue, less rapidly it enters the P-contg. proteins, while the least rate is found for phospholipides. The radioactivity of all fractions declines rapidly in the 1st weeks of postembryonic period of the animals. After 2 months of age the value remains nearly const. with age. Thus intrabrain P exchange appears to decline with age. This is mainly caused by lesser exchange between the phosphates of blood and brain. The highest uptake of P^{32} occurs in medulla oblongata, other brain parts are similar to each other in this respect, in the acid-sol. and protein fractions. The medulla also shows the most rapid exchange of phosphates with the blood. G. M. K.

SMIRNOV, A. A.

S

Phosphorus exchange in the brain under hypoxia with the aid of radioactive phosphorus. A. A. Smirnov and D. A. Chetverikov (I. P. Pavlov Inst. Physiol., Moscow). *Doklady Akad. Nauk S.S.S.R.* 90, 843–5(1953); cf. *C.A.* 49, 12649*i*.—Expts. on rabbits with the aid of P^{32}-labeled phosphate under conditions of deficiency of O_2, produced in an exptl. chamber contg. atm. with but 7–8% O_2, showed that the rate of introduction of phosphate into the various parts of the brain tissue increases under conditions of such hypoxia over a period of 1–2 days. The phenomenon is caused mainly by enhanced passage of phosphate from the blood into the brain tissue. A slight increase of P exchange appears to take place in the lipide fraction of the brain matter.
G. M. Kosolapoff

(1) Rmt Pm

SMIRNOV, A.A.

USSR/ Medicine - Central nervous system

Card 1/1 Pub. 86 - 3/36

Authors : Smirnov, A. A., and Chetverikov, D. A.

Title : Radioactive isotopes for the studying of the metabolism of the brain

Periodical : Priroda 2, 23-29, Feb 1954

Abstract : A brief review is presented for the purpose of acquainting the reader with the principles of employing radioactive isotopes for the study of the metabolism of the central nervous system and to explain the possibilities the isotope method will open to researchers working on the chemistry of the brain.

Institution : .....

Submitted : .....

Translation M-1200, 1 Mar 55

SMIRNOV, A.A.

USSR/Medicine - Physiology

Card 1/1 Pub. 22 - 35/51

Authors : Smirnov, A. A.

Title : Phosphorus metabolism in the cerebral cortex of a dog during sleep and awaken state

Periodical : Dok. AN SSSR 101/5, 913-916, Apr 11, 1955

Abstract : Experiments were conducted on dogs to compare the phosphorus metabolism in various zones of the cerebral cortex in the state of natural physiological sleep and the metabolic processes in the awaken state. The results obtained on eighteen adult canines are described. Eight references: 4 USSR, 3 USA and 1 English (1936-1954). Tables.

Institution : Acad. of Sc., USSR, The I. P. Pavlov Inst. of Physiol.

Presented by : Academician K. M. Bykov, December 13, 1954

SMIRNOV, A. A.

2585. Phosphorus content and metabolism in various regions of cerebral cortex of dog in rest and activity. A. A. Smirnov *Dokl. Akad. Nauk, S.S.S.R.*, 1955, 105, 185—187; *Referat. Zh. biol. Khim.*, 1956, Abstr. No. 13767.—The P metabolism in the brain of the dog was studied with ^{32}P, the P fractions being separated by the Schmidt-Thannhauser method. At rest the contents of P, RNA and DNA were higher in the visual area than in the motor or auditory areas, and the phospholipids (PL) were higher than in the auditory area. The content of phosphoproteins was the same in all these areas but higher than in the midbrain, in which, on the contrary, the content of PL was higher than in the cortex. The rate of incorporation of ^{32}P into RNA and PL at rest was highest in the motor and visual areas. On establishing a conditioned reflex to an auditory stimulus there was observed an increased intensity of turnover of RNA and PL in the auditory area, but no change in the other areas or in the midbrain. (Russian)

T. R. Parsons

SMIRNOV, A.A.

17(1) SOV/30-59-4-36/51

AUTHOR: Razumov, S. A., Candidate of Biological Sciences

TITLE: Problems of Ecological Physiology (Problemy ekologicheskoy fiziologii)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 4, pp 121-123 (USSR)

ABSTRACT: The All-union Conference held by the Institut fiziologii im. I. P. Pavlova (Physiological Institute imeni I. P. Pavlov) in Leningrad between January 12th and January 17th dealt with these problems. Altogether 58 reports were delivered, e.g. A. D. Slonim spoke about "Essential Trends of Research of the Ecological-physiological Specialization in Mammals"; D. A. Biryukov on "Ecological Factors in Animal Physiology"; I. D. Strel'nikov on "the Ecological Heat Balance in Several Invertebrates (Insects) and Vertebrates (Reptiles and Mammals)"; I. A. Arshavskiy spoke about "the Comparative Ontogenetic Characteristics of Several Physiological Features in Rabbits and Hares in Connection With Particularities of Their Ecology"; Ye. M. Kreps, N. A. Verzhbinskaya and A. A. Smirnov reported on "Physiological Characteristics of Various Hemocyanins of Species of Crabs in Dependence of Their Conditions of Life"; Ye. I. Orlov spoke about

Card 1/2

"the Behavior and Survival of "iksodovyye kleshchi" (mites) in the Case of Irrigation and Flooding of the Irrigated Regions"; N. P. Naumov spoke about "the Internal Structure of Higher Vertebrates and Some Problems of Their Investigation by Ecological-physiological Methods"; I. Ya. Polyakov dealt with "the Morpho-physiological Variability of the Population of Rodents Under the Effect of Ecological Conditions"; N. I. Kalabukhov, N. A. Morkiyevich and E. A. Petrosyan spoke about "Several Ecological-physiological Characteristics of Various Species and Geographical Populations of a Type of Sandstone"; M. V. Kirson, N. P. Naumov, N. M. Dukel'skaya and L. V. Borisov reported on "the Ecological and Physiological Trend of the Investigation of the Effect of Rat Poisons". In their resolution the members of the Conference underlined the great importance of ecological physiology and indicated the most important ways of further research in this field. Special attention was paid to the increased research work carried out by ecologists, zoologists, physiologists and biochemists.

Card 2/2

15

SHIRMOV, A.A.; CHIRKOVSKAYA, Ye.V.; MANUKYAN, K.G.

Study of phospholipids in various segments of the rat brain using various methods of paper chromatography. Biokhimiia 26 no.6:1027-1033 N D '61. (MIRA 15:6)

1. Laboratory of Neurochemistry, Institute of Evolutionary Physiology, Academy of Sciences of the U.S.S.R., Leningrad.
(BRAIN)
(PHOSPHATIDES)
(PAPER CHROMATOGRAPHY)

SMIRNOV, A.A., kand.med.nauk

Influence of high temperatures and air humidity on the rate of overheating of the human body. Gig. i san. 26 no.10:16-19 O '61. (MIRA 15:5)
(HEAT--PHYSIOLOGICAL EFFECT) (HUMIDITY--PHYSIOLOGICAL EFFECT)
(BODY TEMPERATURE--REGULATION)

KREPS, Ye.M.; MANUKYAN, K.G.; SMIRNOV, A.A.; CHIRKOVSKAYA, Ye.V.

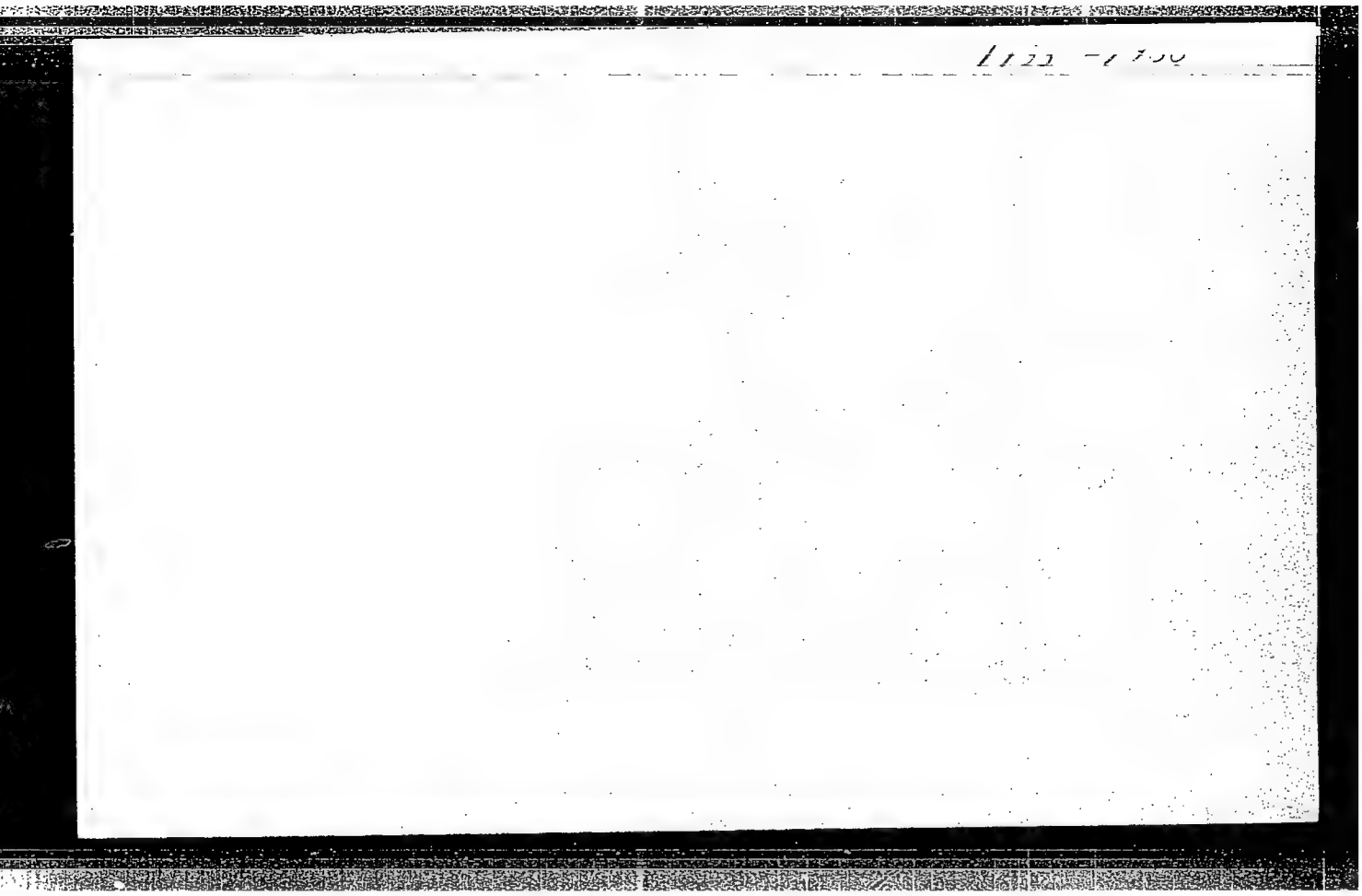
Study of phospholipides of the nervous system in the evolutionary series of animals. Biokhimiia 28 no.6:978-986 N-D'63 (MIRA 17:1)

1. Laboratory of Neurochemistry, Institute of Evolutionary Physiology, Academy of Sciences of the U.S.S.R., Leningrad.

KREPS, Ye.M.; MANUKYAN, K.G.; PATRIKEYEVA, M.V.; SMIRNOV, A.A.; CHENYKAYEVA, Ye.Yu.; CHIRKOVSKAYA, Ye.V.

Phospholipides in subcellular particles of the chick brain. Biokhimiia 29 no.6:1111-1118 N-D '64. (MIRA 18:12)

1. Institut evolyutsionnoy fiziologii i biokhimii imeni I.M. Sechenova AN SSSR, Leningrad. Submitted April 23, 1964.



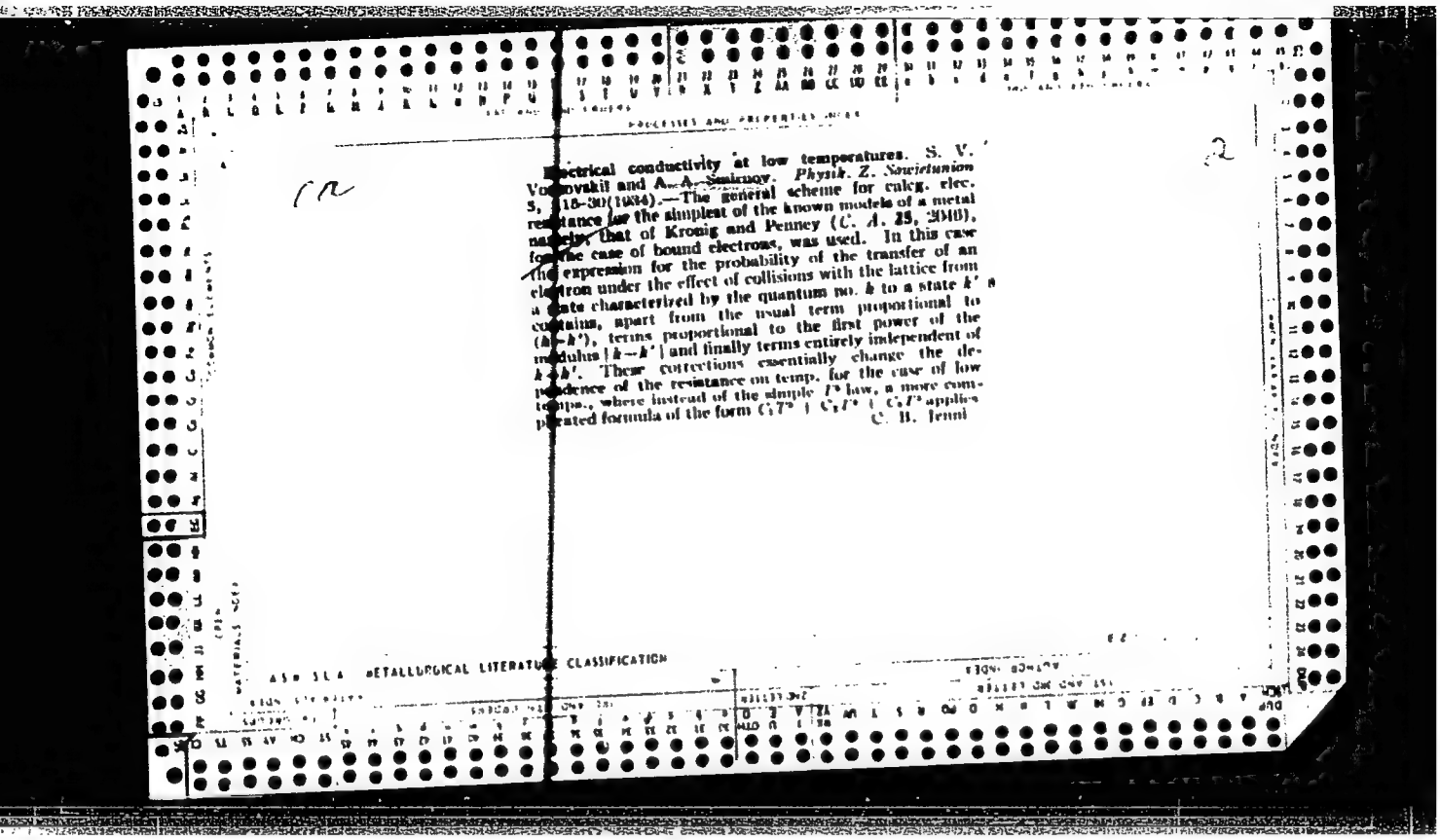
PROCESSES AND PROPERTIES INDEX

Ca

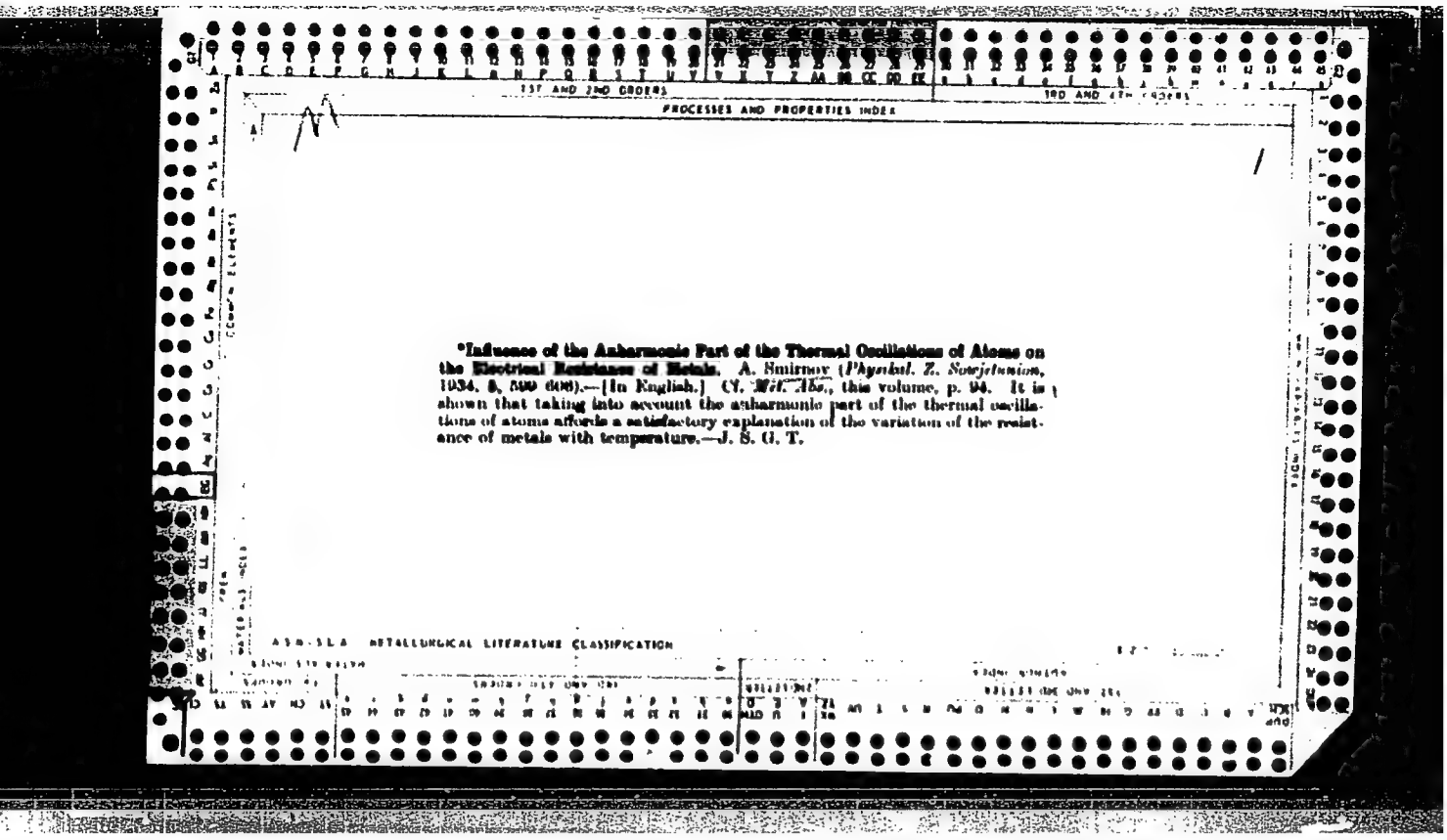
2

The influence of the anharmonic thermal oscillations of atoms on the electric resistance of metals. A. A. Smirnov. *Exptl. Theoret. Phys.* (U. S. S. R.) 4, 229-34(1934).—Theoretical. The formula $\Delta\rho/\rho_0 = (C_1/C_2)T = \alpha[1 + (a/n\chi k)]T$ holds well for Grüneisen's data on Cu and Ag (cf. *Ann. Physik* 16, 530(1933)) (ρ is sp. resistance, a is a lattice const., χ is the coeff. of compression, n is the no. of atoms/cc., α is a proportionality const. and k is also a const.). F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



ectrical conductivity at low temperatures. S. V. Vonsovskii and A. A. Smirnov. *Physik. Z. Sowjetunion* 5, 118-30(1934).—The general scheme for calcg. elec. resistance for the simplest of the known models of a metal namely, that of Kronig and Penney (*C. A.* **25**, 2940), for the case of bound electrons, was used. In this case the expression for the probability of the transfer of an electron under the effect of collisions with the lattice from a state characterized by the quantum no. k to a state k' contains, apart from the usual term proportional to $(k-k')$, terms proportional to the first power of the modulus $|k-k'|$ and finally terms entirely independent of $k-k'$. These corrections essentially change the dependence of the resistance on temp. for the case of low temps., where instead of the simple T^5 law, a more complicated formula of the form $CT^5 + C_1T^6 + C_2T^7$ applies.
C. B. Jenni



PROCESSES AND PROPERTIES INDEX

"Influence of the Anharmonic Part of the Thermal Oscillations of Atoms on the Electrical Resistance of Metals. A. Smirnov (*Physikal. Z. Sowjetunion*, 1934, **5**, 599 (68)).—[In English.] Cf. *Met. Abs.*, this volume, p. 94. It is shown that taking into account the anharmonic part of the thermal oscillations of atoms affords a satisfactory explanation of the variation of the resistance of metals with temperature.—J. S. G. T.

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

SMIRNOV, A. A.

The Problem of Interaction between the Electron and Electromagnetic Radiation in Quantum Electrodynamics.

ZhETF 5, 687, 1935.

SMIRNOV, A.

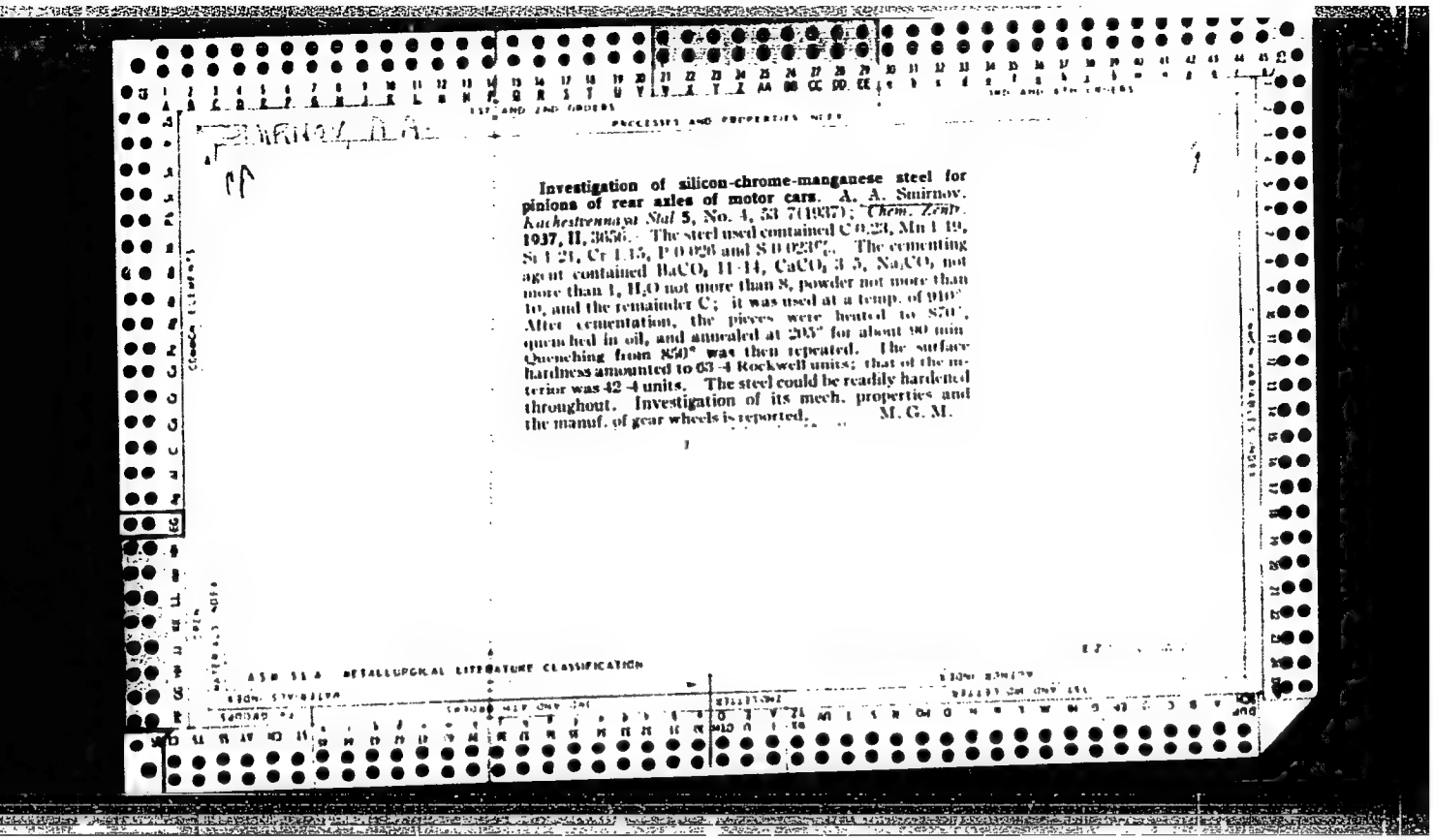
Sa

A 53
V

PROCESSES AND PROPERTIES INDEX

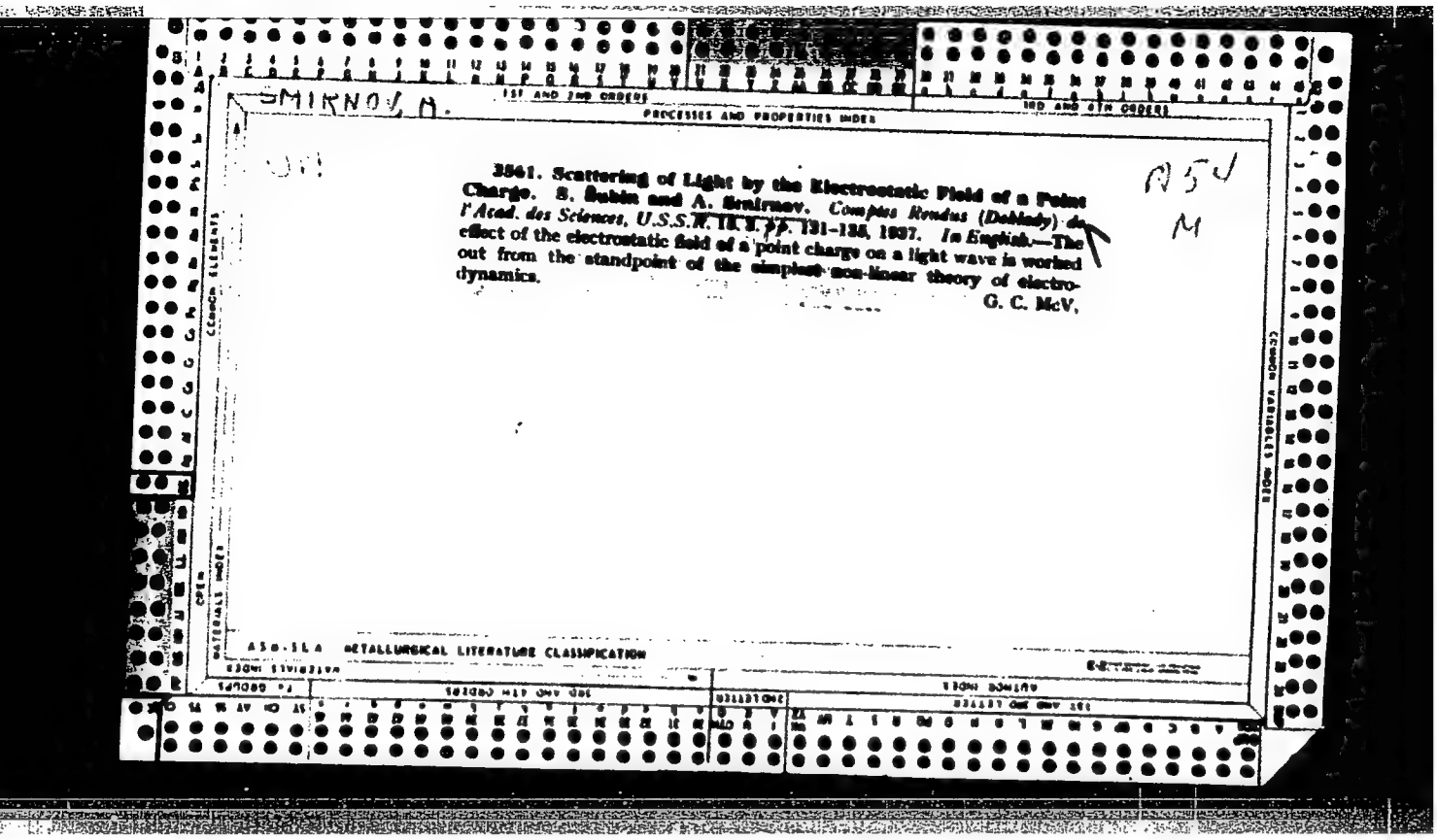
2028. Simple Example of Born's Electrodynamics. S. Bubin and A. Smirnow. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.*, 1. 2. *pp.* 69–72, 1936. *In German.*—The properties are investigated of a plane, monochromatic light-wave in space characterised by a homogeneous electrostatic field which is weak compared with the critical field. It is shown that the field vectors, E and B of the light wave behave, to a first approximation, just as they would in a uniaxial crystal of principal dielectric constant, ϵ, given by $\epsilon = 1 + N^2/b^2$, N denoting the field strength, and b the critical field. Other results are briefly interpreted in terms of Dirac's positron theory. J. S. G. T.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



Investigation of silicon-chrome-manganese steel for pinions of rear axles of motor cars. A. A. Smirnov. *Kachestvennaya Stal* **5**, No. 4, 53–7 (1937); *Chem. Zentr.* **1937, II**, 3656. The steel used contained C 0.23, Mn 1.19, Si 1.21, Cr 1.35, P 0.026 and S 0.023%. The cementing agent contained $BaCO_3$ 11–14, $CaCO_3$ 3–5, Na_2CO_3 not more than 1, H_2O not more than 8, powder not more than 10, and the remainder C; it was used at a temp. of 910°. After cementation, the pieces were heated to 870°, quenched in oil, and annealed at 200° for about 90 min. Quenching from 850° was then repeated. The surface hardness amounted to 63–4 Rockwell units; that of the interior was 42–4 units. The steel could be readily hardened throughout. Investigation of its mech. properties and the manuf. of gear wheels is reported. M. G. M.

Behavior of the glass electrode at various temperatures. A. A. Smirnov. *J. Gen. Chem.* (U. S. S. R.) 7, 790-807 (1937).—The effect of temp. on the potential difference between a satd. calomel and a glass electrode was investigated at 23-5°, 40° and 60°. The potential rises with temp.; the temp. coeff. is the same as for the H electrode, i. e., 0.2. The p_H can be calcd. by the formula $p_H = (E/\theta) + [k_0 - 0.0025(t - t_0)]$, where E is the difference between the potential of a satd. calomel and that of the glass electrode, immersed in a soln. consisting of 1 vol. of 0.1 N HCl + 9 vol. of satd. KCl soln., at a given temp. t, $\theta = RT/nF$ at t, t_0 is temp. at which the glass electrode is calibrated; k_0 is a const. at t_0. The glass electrode functions as a reversible H electrode and is ordinarily accurate for the temp. interval studied within ±0.08 p_H, but with proper care the accuracy can be improved to within ±0.03 p_H. S. L. Madorsky



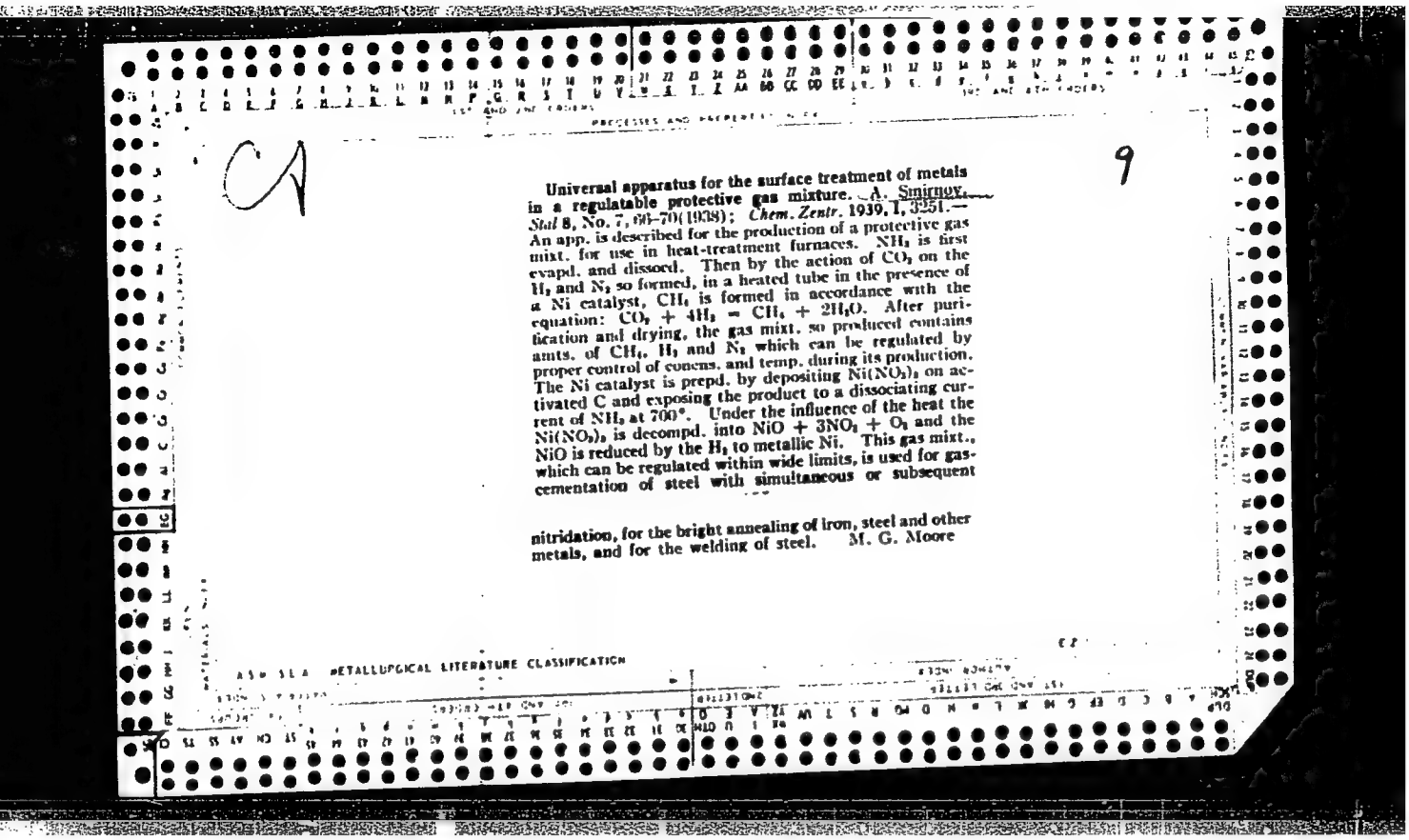
SMIRNOV, A.

PROCESSES AND PROPERTIES INDEX

3561. Scattering of Light by the Electrostatic Field of a Point Charge. S. Rubin and A. Smirnov. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* [illegible] pp. 131–135, 1937. *In English.*—The effect of the electrostatic field of a point charge on a light wave is worked out from the standpoint of the simplest non-linear theory of electrodynamics.

G. C. McV.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

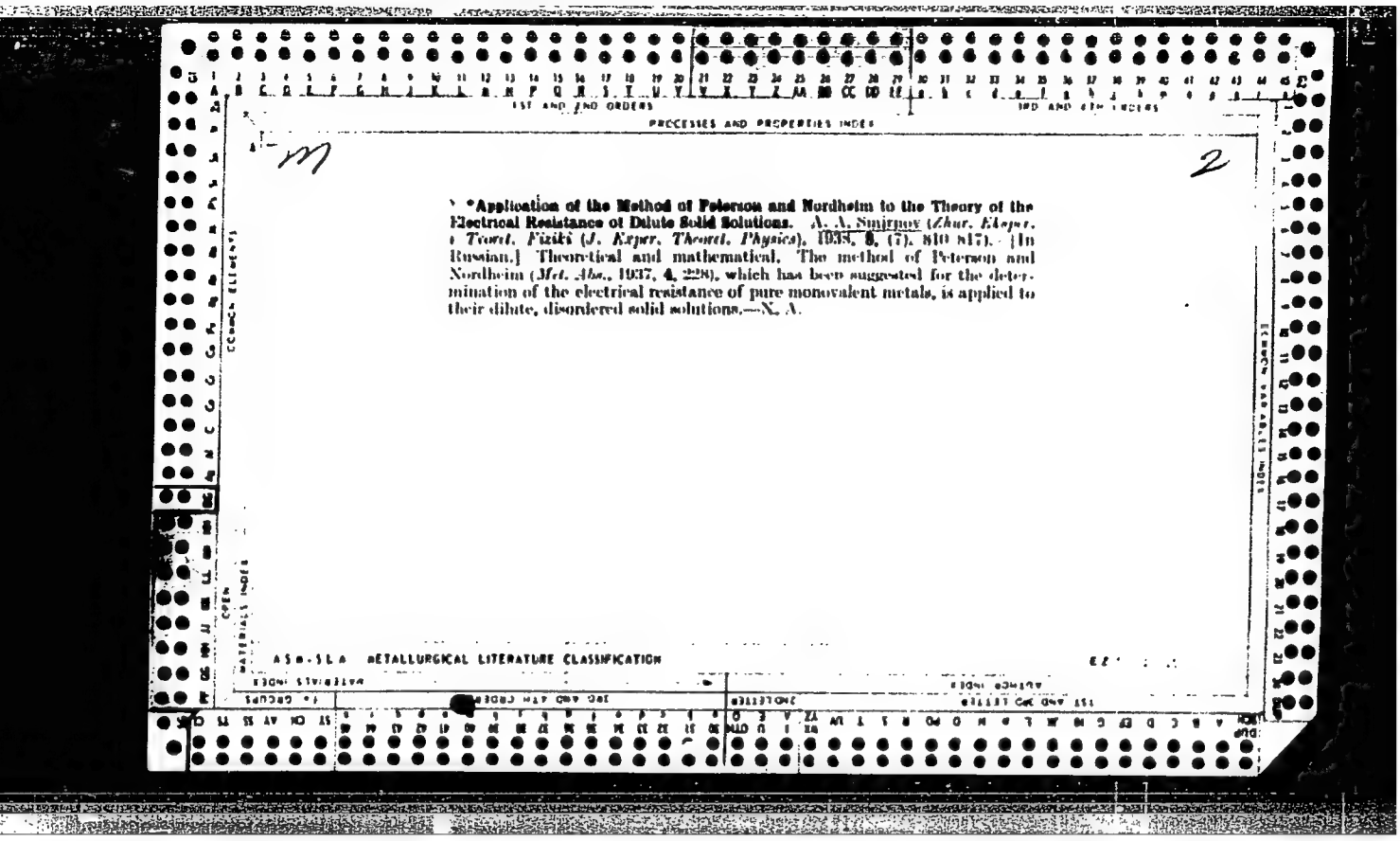


CA

9

Universal apparatus for the surface treatment of metals in a regulatable protective gas mixture. A. Smirnov. *Stal* 8, No. 7, 69–70(1938); *Chem. Zentr.* 1939, I, 3351.— An app. is described for the production of a protective gas mixt. for use in heat-treatment furnaces. NH_3 is first evapd. and dissocd. Then by the action of CO_2 on the H_2 and N_2 so formed, in a heated tube in the presence of a Ni catalyst, CH_4 is formed in accordance with the equation: $CO_2 + 4H_2 = CH_4 + 2H_2O$. After purification and drying, the gas mixt. so produced contains amts. of CH_4, H_2 and N_2 which can be regulated by proper control of concns. and temp. during its production. The Ni catalyst is prepd. by depositing $Ni(NO_3)_2$ on activated C and exposing the product to a dissociating current of NH_3 at 700°. Under the influence of the heat the $Ni(NO_3)_2$ is decompd. into $NiO + 3NO_2 + O_2$ and the NiO is reduced by the H_2 to metallic Ni. This gas mixt., which can be regulated within wide limits, is used for gas-cementation of steel with simultaneous or subsequent nitridation, for the bright annealing of iron, steel and other metals, and for the welding of steel. M. G. Moore

ASM STEEL METALLURGICAL LITERATURE CLASSIFICATION



*Application of the Method of Peierson and Nordheim to the Theory of the Electrical Resistance of Dilute Solid Solutions. A. A. Smirnov (*Zhur. Eksper. i Teoret. Fiziki* (*J. Exper. Theoret. Physics*), 1938, **8**, (7), 810–817). [In Russian.] Theoretical and mathematical. The method of Peierson and Nordheim (*Met. Abs.*, 1937, **4**, 228), which has been suggested for the determination of the electrical resistance of pure monovalent metals, is applied to their dilute, disordered solid solutions.—N. A.

1ST AND 2ND GROUPS

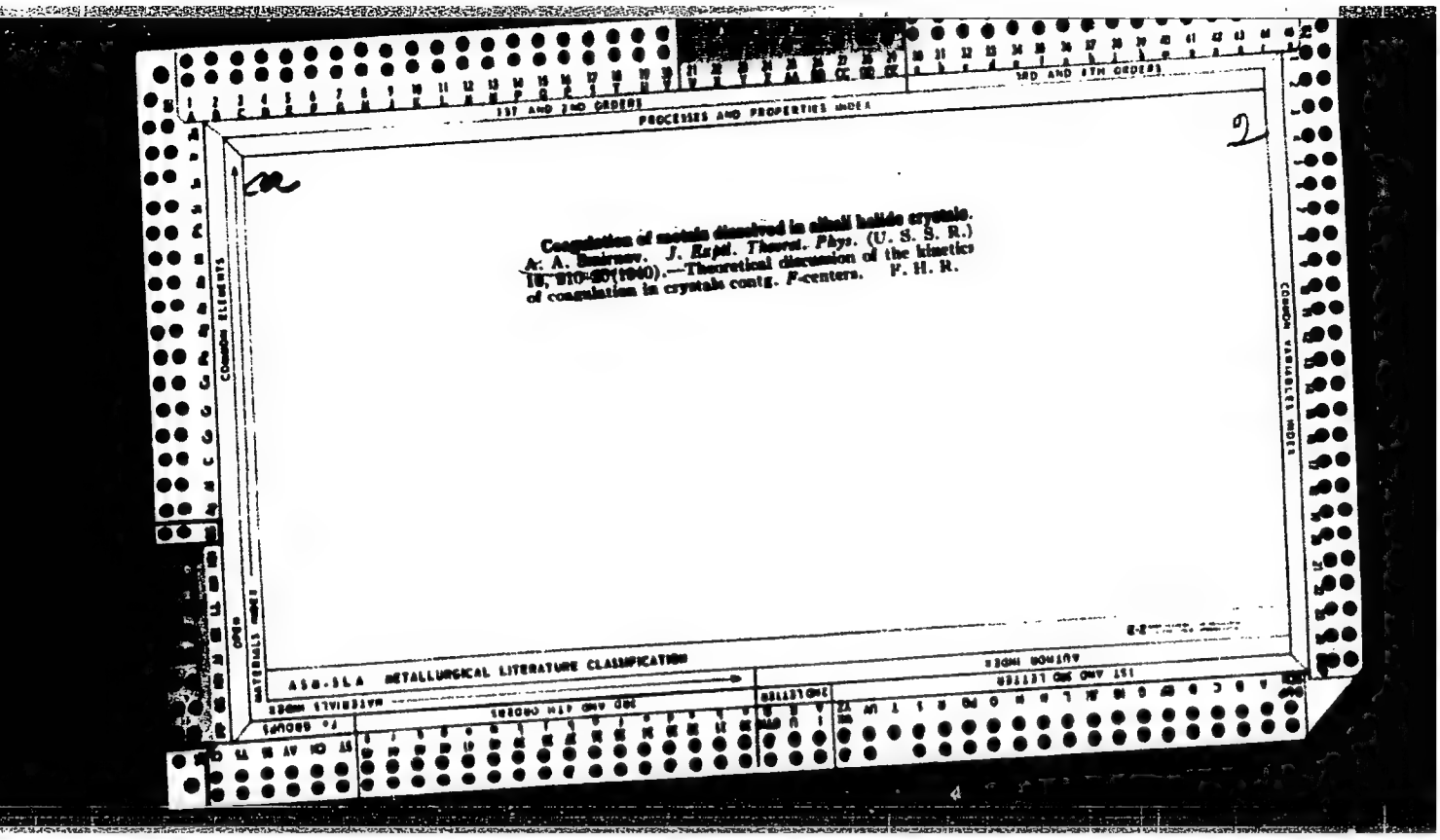
PROCESSES AND PROPERTIES INDEX

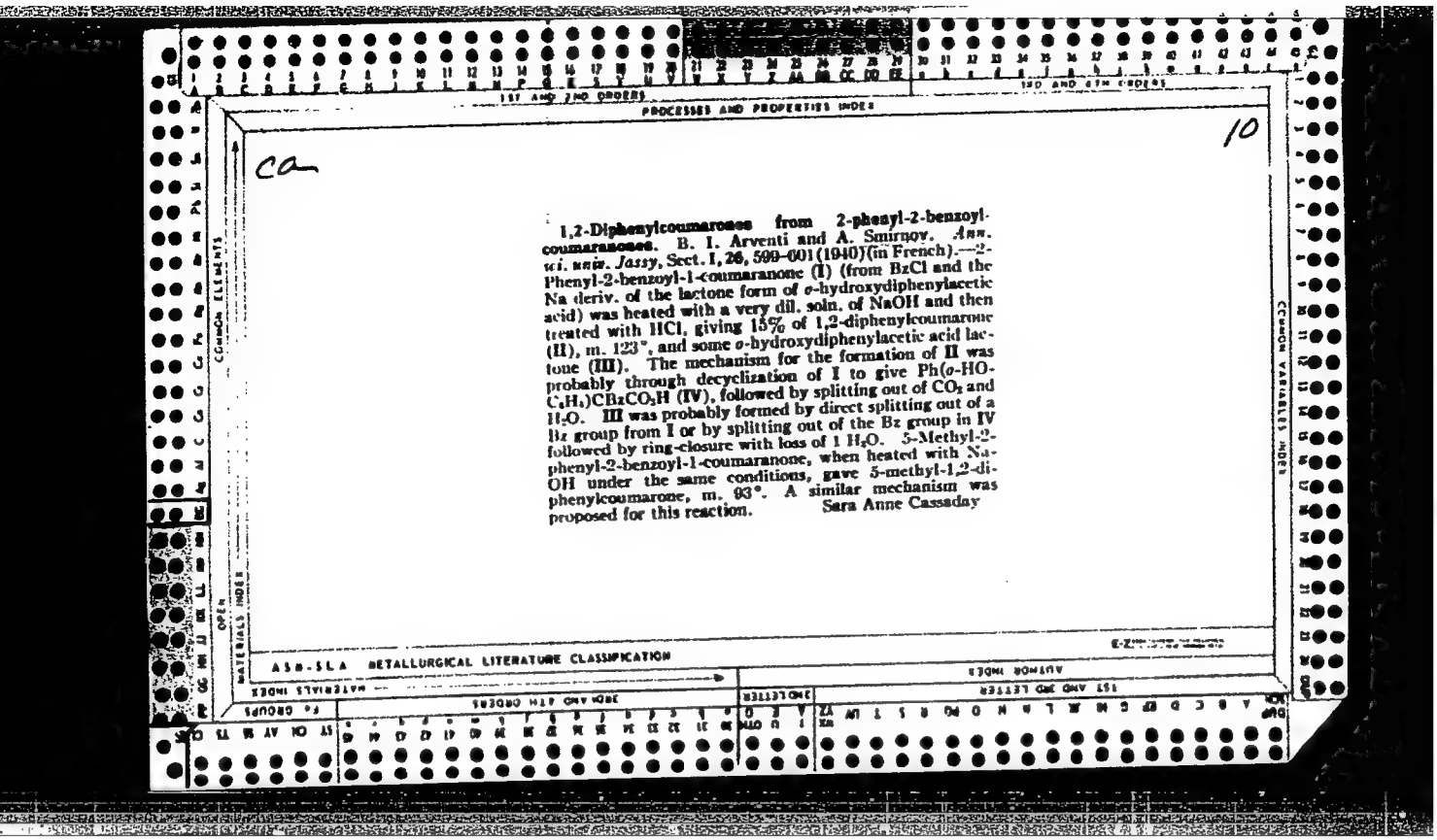
3RD AND 4TH GROUPS

BC

Problem of two plane waves in classical non-linear electrodynamics. A. A. Smirnov (*J. Physics U.S.S.R.*, 1940, **3**, 447—462).—Mathematical. The properties of a plane monochromatic light wave in space in which another plane monochromatic light wave is propagated are investigated according to the classical non-linear electrodynamics of Born and Infeld (A., 1935, 912). On the assumption that the fields of the waves are small compared with the crit. field, the solution is obtained in a first-order approximation showing that both a distortion of the fields of the initial waves, and the appearance of scattered waves with greatly changed frequencies and velocities of propagation, will occur. The effects are very small and unobservable experimentally. O. D. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION





PROCESSES AND PROPERTIES INDEX

10

ca

1,2-Diphenylcoumarones from 2-phenyl-2-benzoylcoumaranones. B. I. Arventi and A. Smirnov. *Ann. sci. univ. Jassy*, Sect. I, 26, 599–601 (1940)(in French).—2-Phenyl-2-benzoyl-1-coumaranone (I) (from BzCl and the Na deriv. of the lactone form of *o*-hydroxydiphenylacetic acid) was heated with a very dil. soln. of NaOH and then treated with HCl, giving 15% of 1,2-diphenylcoumarone (II), m. 123°, and some *o*-hydroxydiphenylacetic acid lactone (III). The mechanism for the formation of II was probably through decyclization of I to give Ph(*o*-HO-C_6H_4)$CBzCO_2H$ (IV), followed by splitting out of CO_2 and H_2O. III was probably formed by direct splitting out of a Bz group from I or by splitting out of the Bz group in IV followed by ring-closure with loss of 1 H_2O. 5-Methyl-2-phenyl-2-benzoyl-1-coumaranone, when heated with NaOH under the same conditions, gave 5-methyl-1,2-diphenylcoumarone, m. 93°. A similar mechanism was proposed for this reaction. Sara Anne Cassaday

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

2. Properties of alloys

Met Abs
V. 9

"The Effect of Long-Range Order in Alloys upon the Scattering of Slow Neutrons. A. A. Smirnov and S. V. Vonsovsky (*J. Physics (U.S.S.R.)*, 1941, 4, (4), 283–288).—[In English.] The effect of long-range order in alloys upon the scattering of slow neutrons by a crystal lattice is considered mathematically. The question is of interest because it has been found possible by studies of neutron scattering to detect the existence of superstructures in alloys, even in cases that have proved difficult for the X-ray method. (See Nix, Beyer, and Dunning, *Met. Abs.*, 1941, 8, 158).—N. B. V.

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

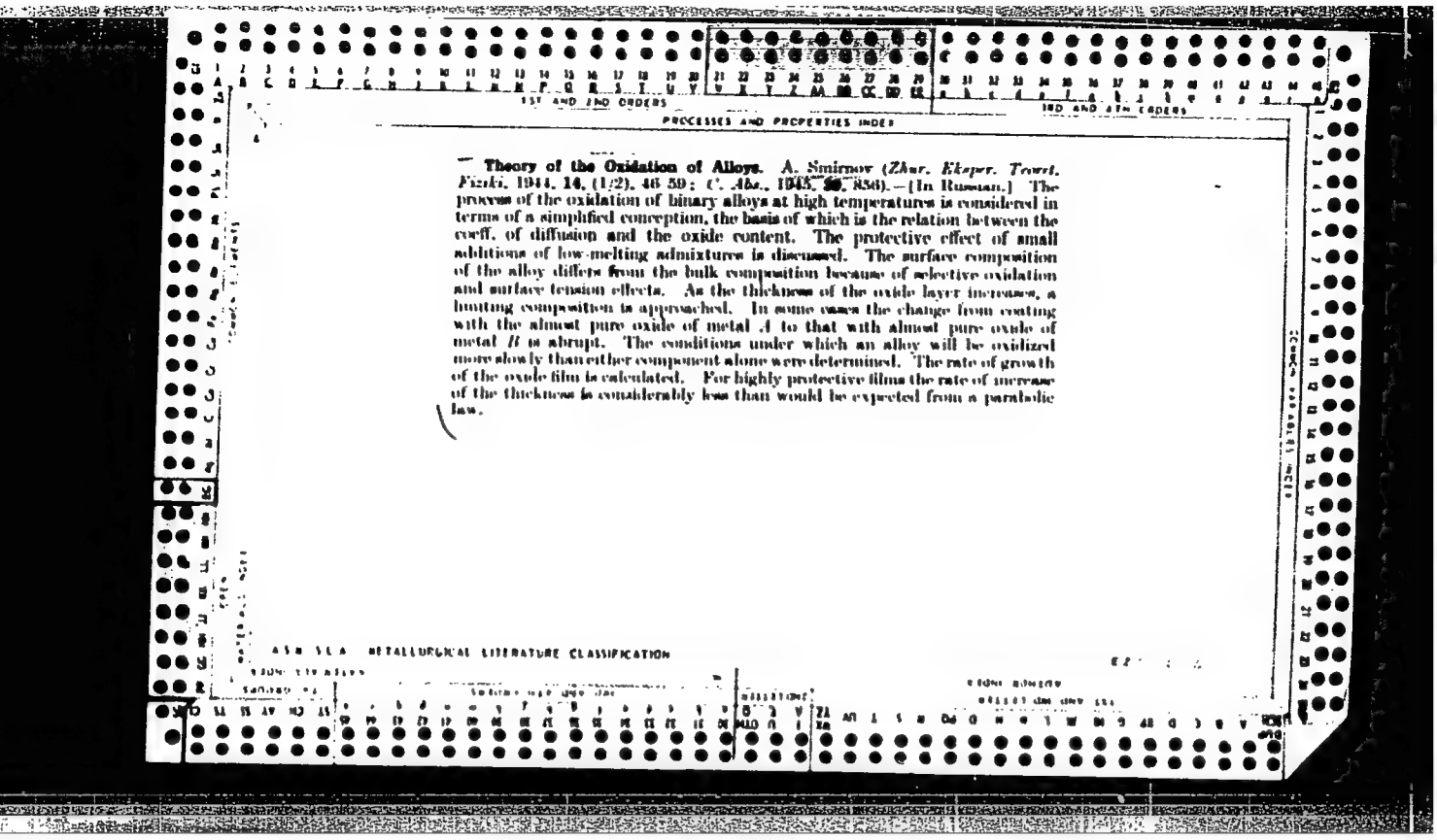
CA

1

A method for measuring pH with the MacInnes and Dole glass electrode. A. A. Smirnov. *Bull. acad. sci. U.R.S.S., Sér. biol.* 1944, 172-6 (English summary).—pH measurements with the MacInnes and Dole glass electrode (cf. *C.A.* 23, 3088) can be made without the AgCl electrode by using 2 satd., oppositely directed calomel electrodes. This modification has the advantage of much better reproducibility at higher temps. Calibration values for the app. are given and the construction of the app. is described.

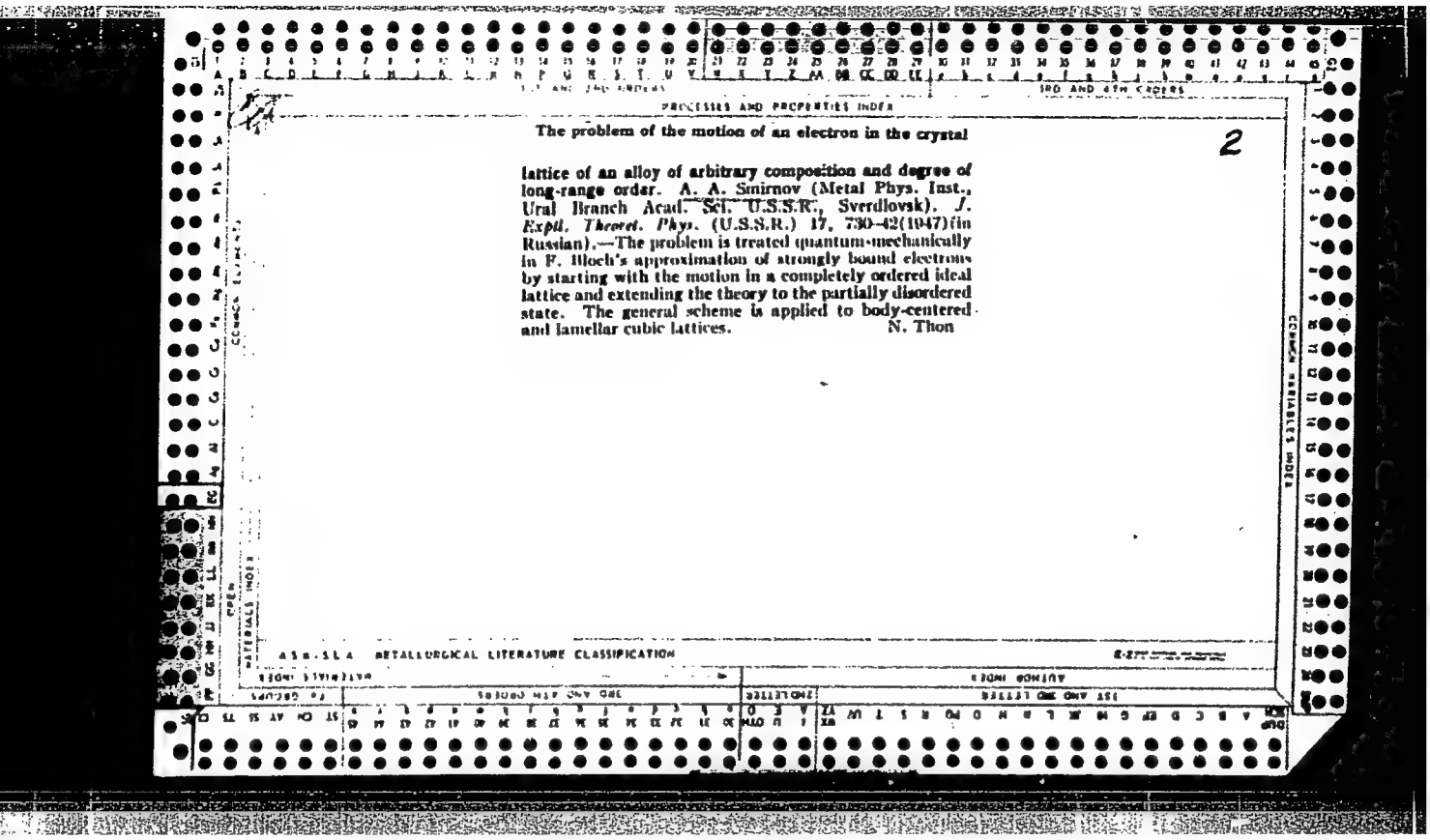
S. Gottlieb

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Theory of the Oxidation of Alloys. A. Smirnov (*Zhur. Eksper. Teoret. Fiziki*, 1944, **14**, (1/2), 46–59; *C. Abs.*, 1945, **39**, 836).—[In Russian.] The process of the oxidation of binary alloys at high temperatures is considered in terms of a simplified conception, the basis of which is the relation between the coeff. of diffusion and the oxide content. The protective effect of small additions of low-melting admixtures is discussed. The surface composition of the alloy differs from the bulk composition because of selective oxidation and surface tension effects. As the thickness of the oxide layer increases, a limiting composition is approached. In some cases the change from coating with the almost pure oxide of metal *A* to that with almost pure oxide of metal *B* is abrupt. The conditions under which an alloy will be oxidized more slowly than either component alone were determined. The rate of growth of the oxide film is calculated. For highly protective films the rate of increase of the thickness is considerably less than would be expected from a parabolic law.



PROCESSES AND PROPERTIES INDEX

The problem of the motion of an electron in the crystal lattice of an alloy of arbitrary composition and degree of long-range order. A. A. Smirnov (Metal Phys. Inst., Ural Branch Acad. Sci. U.S.S.R., Sverdlovsk). *J. Exptl. Theoret. Phys.* (U.S.S.R.) 17, 730–42(1947)(in Russian).—The problem is treated quantum-mechanically in F. Bloch's approximation of strongly bound electrons by starting with the motion in a completely ordered ideal lattice and extending the theory to the partially disordered state. The general scheme is applied to body-centered and lamellar cubic lattices. N. Thon

2

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

USSR/Physics Sep/Oct 1947
Alloys
Galvanomagnetic Phenomena

"The Theory of Electromagnetic Effect in Stable Alloys," A. A. Smirnov, Institute of Physics of Metals, Ural Branch, Academy of Sciences of the USSR, 3½ pp

"Izv Ak Nauk, Ser Fizich" Vol XI, No 5

First discusses the tests which were conducted to establish the theory within the regular lattice of a metal sample; however, first the author had to reconcile himself to the inadequacies, so as to be able to carry the factual calculations through to the end. In the second part of the article the author shows how

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USSR/Physics (Contd) Sep/Oct 1947

this theory can be adapted for the solution of the electromagnetic phenomena in stable alloys.

SMIRNOV, A. A. LC

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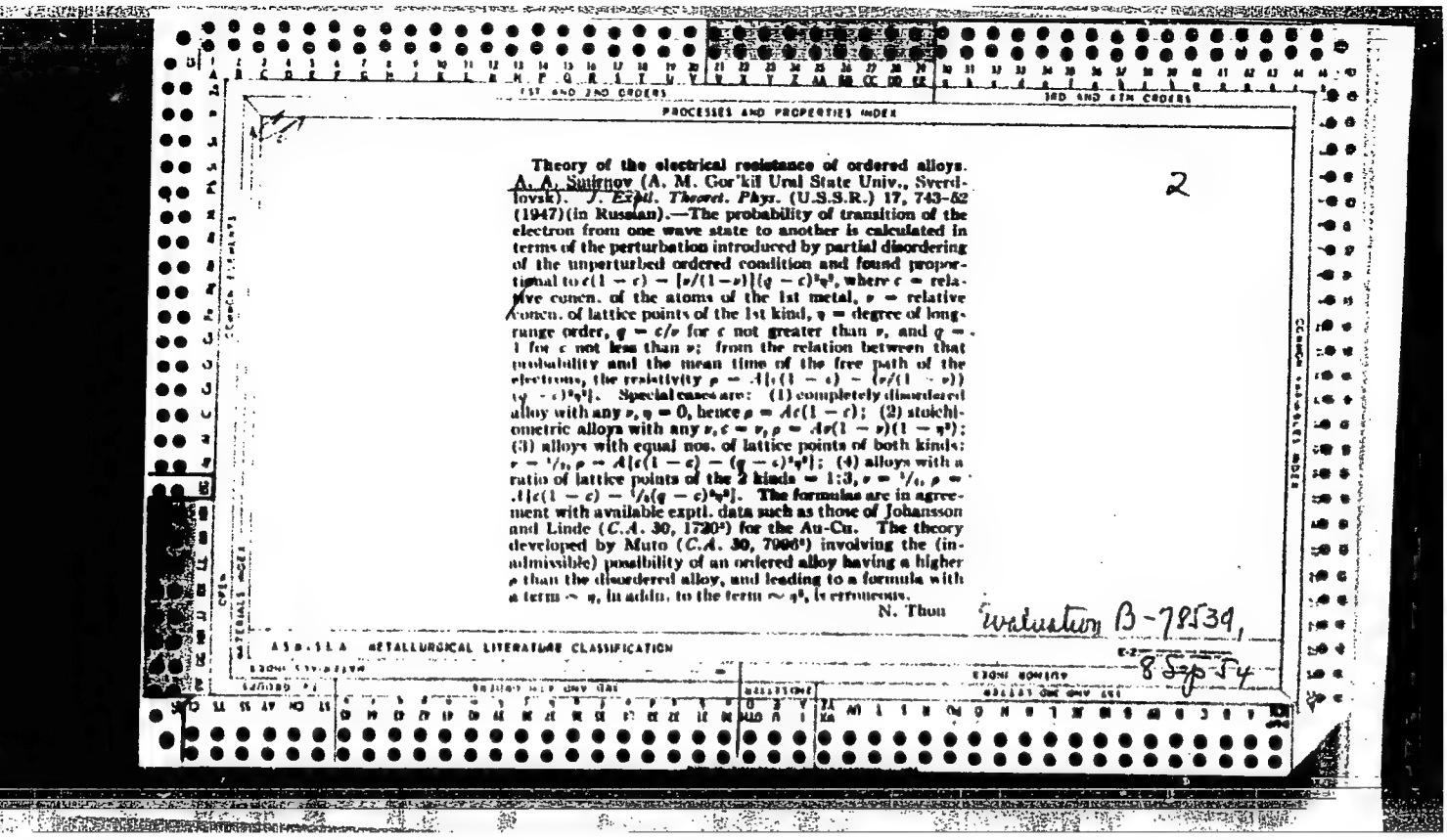

PROCESSES AND PROPERTIES INDEX

Theory of the electrical resistance of ordered alloys. A. A. Smirnov (A. M. Gor'kii Ural State Univ., Sverdlovsk). *J. Exptl. Theoret. Phys.* (U.S.S.R.) 17, 743–52 (1947)(in Russian).—The probability of transition of the electron from one wave state to another is calculated in terms of the perturbation introduced by partial disordering of the unperturbed ordered condition and found proportional to $c(1-c) - [\nu/(1-\nu)](q-c)^2\eta^2$, where c = relative concn. of the atoms of the 1st metal, ν = relative concn. of lattice points of the 1st kind, η = degree of long-range order, $q = c/\nu$ for c not greater than ν, and $q = 1$ for c not less than ν; from the relation between that probability and the mean time of the free path of the electrons, the resistivity $\rho = A[c(1-c) - (\nu/(1-\nu))(q-c)^2\eta^2]$. Special cases are: (1) completely disordered alloy with any ν, $\eta = 0$, hence $\rho = Ac(1-c)$; (2) stoichiometric alloys with any ν, $c = \nu$, $\rho = A\nu(1-\nu)(1-\eta^2)$; (3) alloys with equal nos. of lattice points of both kinds: $\nu = 1/2$, $\rho = A[c(1-c) - (q-c)^2\eta^2]$; (4) alloys with a ratio of lattice points of the 2 kinds = 1:3, $\nu = 1/4$, $\rho = A[c(1-c) - 1/3(q-c)^2\eta^2]$. The formulas are in agreement with available exptl. data such as those of Johansson and Linde (*C.A.* 30, 1720[8]) for the Au-Cu. The theory developed by Muto (*C.A.* 30, 7000[8]) involving the (inadmissible) possibility of an ordered alloy having a higher ρ than the disordered alloy, and leading to a formula with a term $\sim \eta$, in addn. to the term $\sim \eta^2$, is erroneous.

N. Thon

2

Evaluation B-78539,

8 Sep 54

USSR/Metals Jan 1947
Alloys - Oxidation
Oxidation

"A Theory of the Oxidation of Alloys, Part I," A. Smirnov, Academy of Sciences of the USSR, Ural Branch, Institute of Metal Physics, Laboratory of Phase Transitions, Sverdlovsk, 25 pp

"Acta Physicochimica USSR" Vol XXII, No 1

A thorough study is given of the oxidation of binary alloys as a function of metal type, atomic concentration of lattice, oxide-film thickness, etc.

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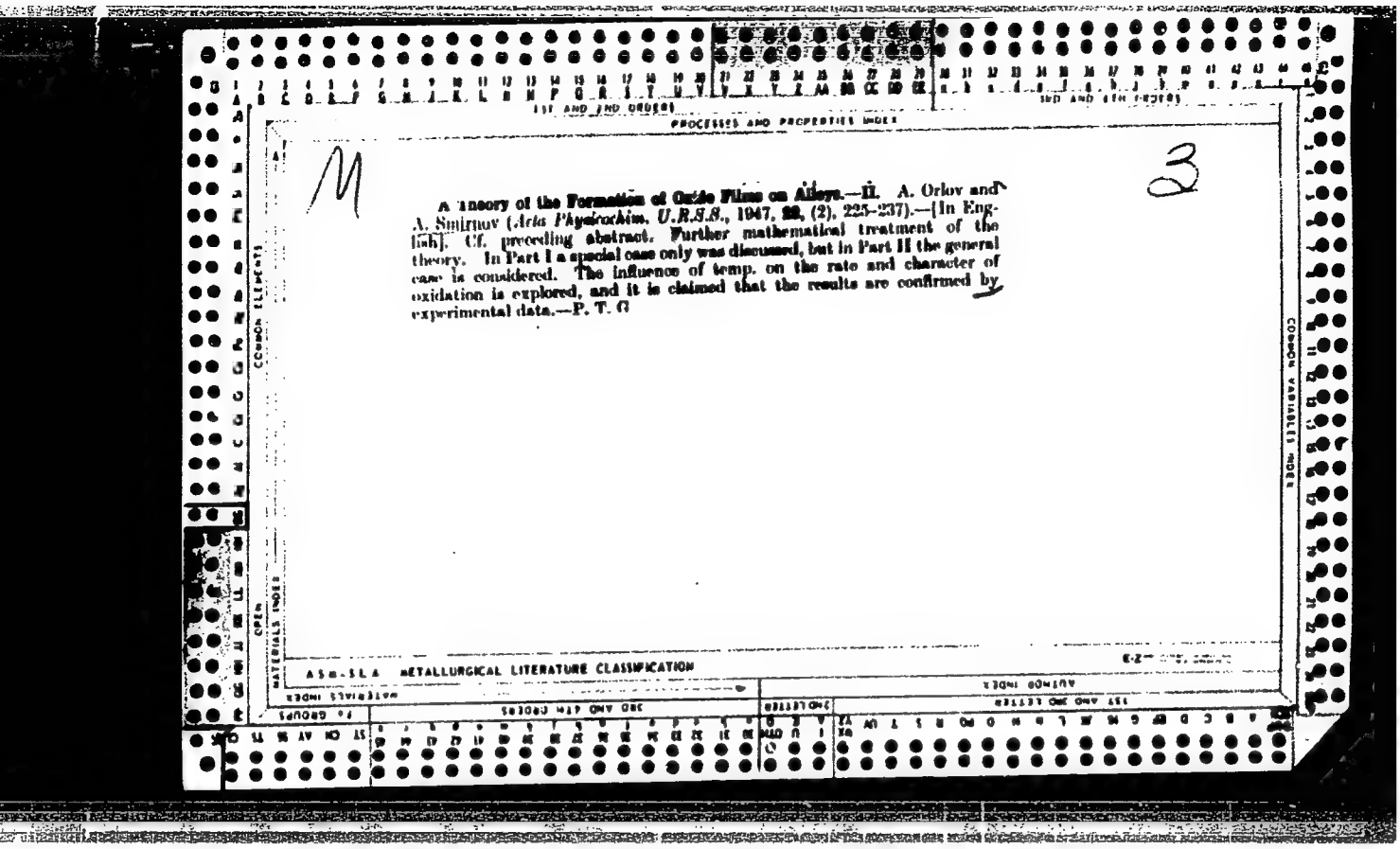

PROCESSES AND PROPERTIES INDEX

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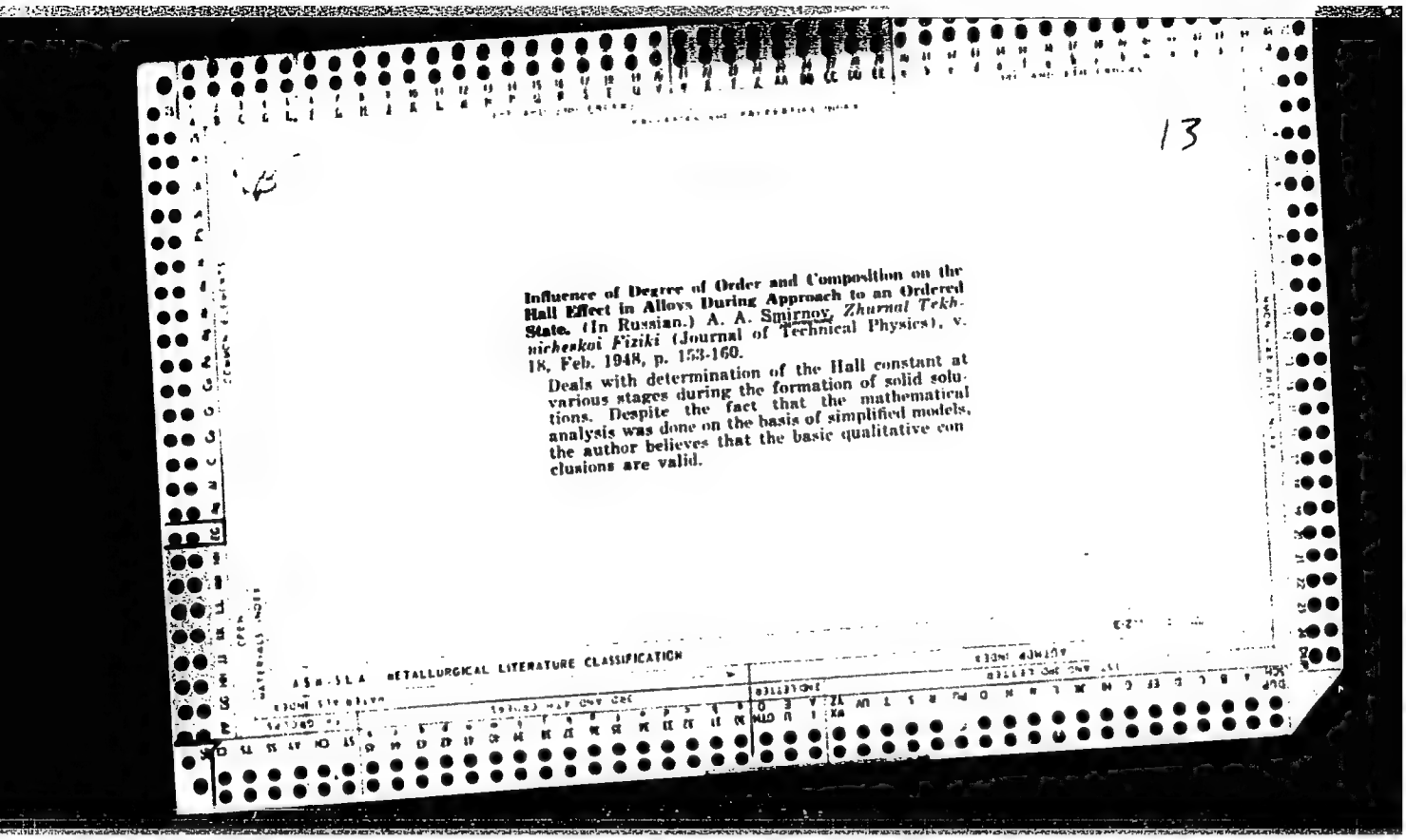
A Theory of the Formation of Oxide Films on Alloys.—II. A. Orlov and A. Smirnov (*Acta PhysicochIm. U.R.S.S.*, 1947, **22**, (2), 225–237).—[In English]. Cf. preceding abstract. Further mathematical treatment of the theory. In Part I a special case only was discussed, but in Part II the general case is considered. The influence of temp. on the rate and character of oxidation is explored, and it is claimed that the results are confirmed by experimental data.—P. T. G

3

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



13

Influence of Degree of Order and Composition on the Hall Effect in Alloys During Approach to an Ordered State. (In Russian.) A. A. Smirnov, *Zhurnal Tekhnicheskoi Fiziki* (Journal of Technical Physics), v. 18, Feb. 1948, p. 153-160.

Deals with determination of the Hall constant at various stages during the formation of solid solutions. Despite the fact that the mathematical analysis was done on the basis of simplified models, the author believes that the basic qualitative conclusions are valid.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SMIRNOV, A.A.

Theory of reordering of alloys. Trudy Inst. Fiz. Metal. Ural Filial Akad. Nauk S.S.S.R. No.12, 40-9 '49. (MLRA 4:2)
(CA 47 no.21:10925 '53)

SMIRNOV, A. A.

PA 51/49T41

USSR/Metals
Oxide Films
Alloys

May 49

"Theory of Oxide-Film Formation on Alloys," A. M. Orlov, A. A. Smirnov, Inst of Metallophys, Ural Affiliate Acad Sci USSR, 10 pp

"Zhur Tekh Fiz" Vol XIX, No 5

Further develops theory of high-temperature oxidation of binary alloys, using model described in previous report ("Zhurnal Eksperimental'noy i Teoreticheskiy Fiziki," Vol XIV, 1944, p 46). Solves problem for case when coefficient of [redacted]

51/49T41

USSR/Metals (Contd) May 49

diffusion of both metals in the oxide depends on its composition. Considers problem of influence of temperature on speed of oxidation at greater length. Submitted 17 May 47.

[redacted]

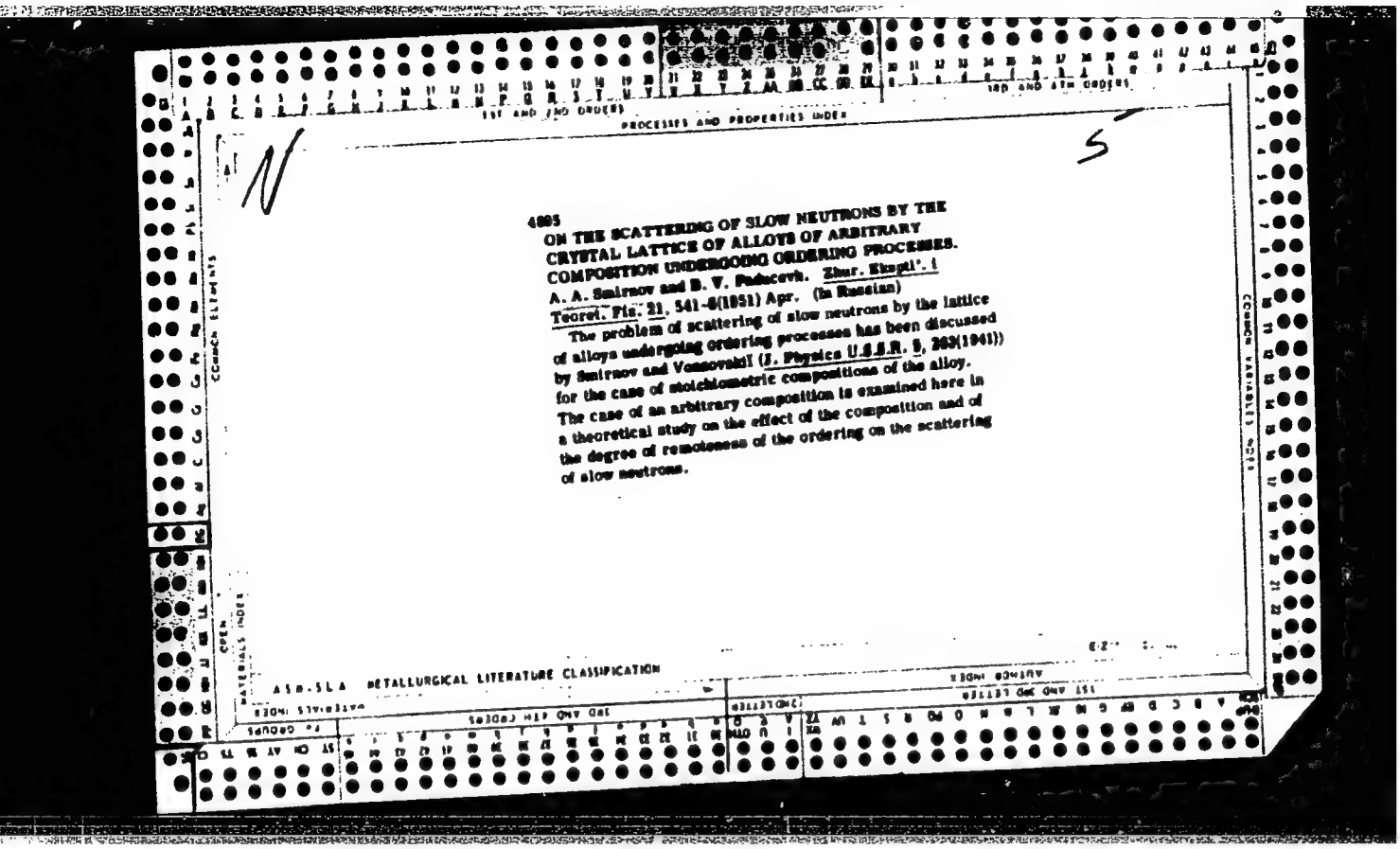
51/49T41

SMIRNOV, A. A.

SMIRNOV, A. A.
NESTERENKO, Ye.H.; [illegible]; KURDYUMOV, H.V., diysnyy chlen.

Disturbance of regularity in the crystallic lattice of alloys. Dop.AN URSR no.3:184-193 '51. (MLRA 6:9)

1. Akademiya nauk Ukrayins'koyi RSR (for Kurdyumov). 2. Laboratoriya metalofizyky Akademiyi nauk Ukrayins'koyi RSR (for Nesterenko and Smyrnov). (Metallography)



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ON THE SCATTERING OF SLOW NEUTRONS BY THE CRYSTAL LATTICE OF ALLOYS OF ARBITRARY COMPOSITION UNDERGOING ORDERING PROCESSES.
A. A. Smirnov and B. V. Paducevh. Zhur. Eksptl'. i Teoret. Fiz. 21, 541-8(1951) Apr. (In Russian)
The problem of scattering of slow neutrons by the lattice of alloys undergoing ordering processes has been discussed by Smirnov and Vonsovskiĭ (J. Physics U.S.S.R. 9, 269(1941)) for the case of stoichiometric compositions of the alloy. The case of an arbitrary composition is examined here in a theoretical study on the effect of the composition and of the degree of remoteness of the ordering on the scattering of slow neutrons.

SMIRNOV, A.A.

"Optical Properties of Metallic Alloys. S. V. Vonsovskiy, A. A. Smirnov, and A. V. Sokolov (*Doklady Akad. Nauk S.S.S.R.*, 1951, 80, (3), 363–366).—[In Russian]. According to the Drude–Zener theory, the elect. conductivity σ and the dielect. const. ε are given by $\sigma = Ne^2\gamma/[2\pi m^*(\nu^2 + \gamma^2)]$ and $\varepsilon = 1 - (2\sigma/\gamma)$, where the free path (relaxation) time $\tau = 1/(2\pi\gamma)$ and m^* is the effective mass of the electron in the lattice. If this be extended to a binary disordered alloy in which the concentrations of the components are c and $1 - c$, $\gamma = c\gamma_1 + (1 - c)\gamma_2 + Dc(1 - c)$, where $\tau_1 = 1/(2\pi\gamma_1)$ and $\tau_2 = 1/(2\pi\gamma_2)$ are the relaxation times for the scattering of the electrons on the atoms of the first and second kinds, resp., and D corresponds to the relaxation time for the residual resistance. This gives $\sigma = (Ne^2/2\pi m^*) \cdot [Dc(1 - c) + c\gamma_1 + (1 - c)\gamma_2]/(\nu^2 + [Dc(1 - c) + c\gamma_1 + (1 - c)\gamma_2]^2)$ and $\varepsilon = 1 - (2\sigma/[Dc(1 - c) + c\gamma_1 + (1 - c)\gamma_2])$. A reflectivity/compn. curve has been computed for low frequencies (infra-red region) using these formulæ and the following data: $\nu = 10^{14}$ sec.$^{-1}$, $\gamma_1 = 4 \times 10^{13}$ sec.$^{-1}$, $\gamma_2 = 5{\cdot}4 \times 10^{13}$ sec.$^{-1}$, and $D = 6 \times 10^{13}$ sec.$^{-1}$. The curve is a catenary with min. value (~89) at 50 at.-%. This cannot be compared with experimental results because of the lack of data, but Bergman and Guertler's work on Cu–Ni alloys (*Z. techn. Physik*, 1935, 16, 235; *M.A.*, 3, 3) indicates a tendency towards catenary curves as the wave-length is increased. Formulæ are also derived for partially ordered alloys with b.c.c. lattice (cf. Sergeev and Chernikhovsky, *Zhur. Eksper. Teoret. Fiziki*, 1934, 4, 235; *M.A.*, 2, 93; Sergeev, *ibid.*, 1938, 8, 948; *M.A.*, 10, 135). The formulæ for σ and ε in the vicinity of the order/disorder transformation temp. reduce to expressions which are almost analogous to corresponding formulæ for ferromagnetic metals with the long-range order parameter η replacing the relative magnetization y. It is thought that the opt. properties of ordered alloys in the visible part of the spectrum must exhibit anomalies at temp. below the transformation point.—G. V. E. T.

1. A. K. BURYLENKO, V. M.DANILENKO, YU V. MIL'MAN, YU V. NAYDICH, S. A. RYBAK, A. A. SMIRNOV

2. USSR (600)

4. Alloys

7. Electrical resistance of well-organized alloys. Zhur eksp. i teor. fiz. 23 no. 6. 1952

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

SMIRNOV, A.A., chlen-korrespondent.

Effect of spaces in centers of the crystal lattice of a metal on its electric resistance. Dop.AN URSR no.3:172-177 '53. (MLRA 6:6)

1. Kiyivs'kyy ordena Lenina politekhnichnyy instytut. (Lattice theory) (Metallography) (Electric resistance)

SMIRNOV, A. A.

Diffusion of incorporated atoms in an alloy which is undergoing ordering and has a Fe_3Al crystalline lattice. M. A. Krivoglaz and A. A. Smirnov. *Voprosy Fiz. Metallov i Metallovedeniya, Akad. Nauk Ukr. S.S.R.* 1953, No. 4, 95–103; *Referat. Zhur., Khim.* 1954, No. 30279.—From the potential energy possessed by diffusing atoms located in internodal spaces of a lattice (U_S) and the probability that an m configuration (W_S) around these atoms forms, the no. of atoms was calcd. that form configuration m around internodal spaces of 2 kinds O_1 and O_2 (n_{1m} and n_{2m}): $n_{1m} = \lambda W_{S_1} \exp(U_S^1/kT)$, $n_{2m} = \lambda W_{S_2} \exp(U_S^2/kT)$, in which λ is the coeff. of order, k Boltzmann const., and T is abs. temp. The direct and reverse movement of atoms going from one plane into a neighboring one is calcd. from the no. of atoms in various configurations located in 2 adjacent planes, and from the probability of an atom moving from a plane into a neighboring one. The difference between direct and reverse flow dets. the resulting stream of atoms from which is obtained the value of the coeff. of diffusion. The final expression for the coeff. of diffusion was calcd. as a function of temp., compn. of the alloy, and the degree of order. It should be taken into account that the degree of order is also a function of compn. and temp. From the analysis of the expression for the coeff. of diffusion it follows that the dependence of the coeff. on temp. and concn. in a cryst. lattice of the type Fe_3Al in an unordered state has the same qual. properties as in the case of a face-centered lattice. The effect of the degree of order on diffusion in alloys with a lattice on the Fe_3Al type is less than in a face-centered cubic lattice because the process of ordering involves only half the nodes in a Fe_3Al lattice and because internodal spaces O_1 and O_2 are surrounded by the same no. of nodes in which various atoms are located in the process of ordering.

M. Hoseh